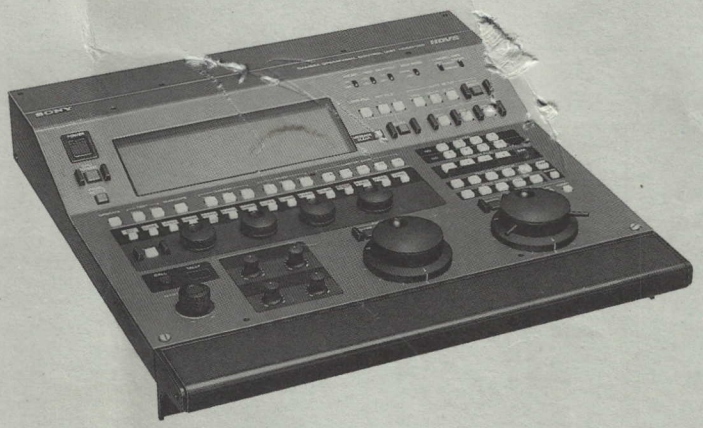
SONY

HD CAMERA OPERATIONAL CONTROL UNIT

HDCO-300



HDVS

OPERATION MANUAL

1st Edition (Revised 2)

Serial No.10001 and Higher

Warning — This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Important-To insure that the complete system (including this peripheral) is capable of complying with the FCC requirements, it is recommended that the user make sure that the individual equipment of the complete system has a label with one of the following statements.

"This equipment has been tested with a Class A Computing Device and has been found to comply with Part 15 of FCC Rules."

-or-

"This equipment complies with the requirements in Part 15 of FCC Rules for a Class A Computing Device."

-or equivalent.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a computing device pursuant to Subpart J of Part 15 of FCC rules.

For the customers in Canada

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

Pour les utilisateurs au Canada

Cet appareil est conforme aux normes Classe A pour bruits radioélectriques, spécifiés dans le Règlement sur le brouillage radioélectrique.

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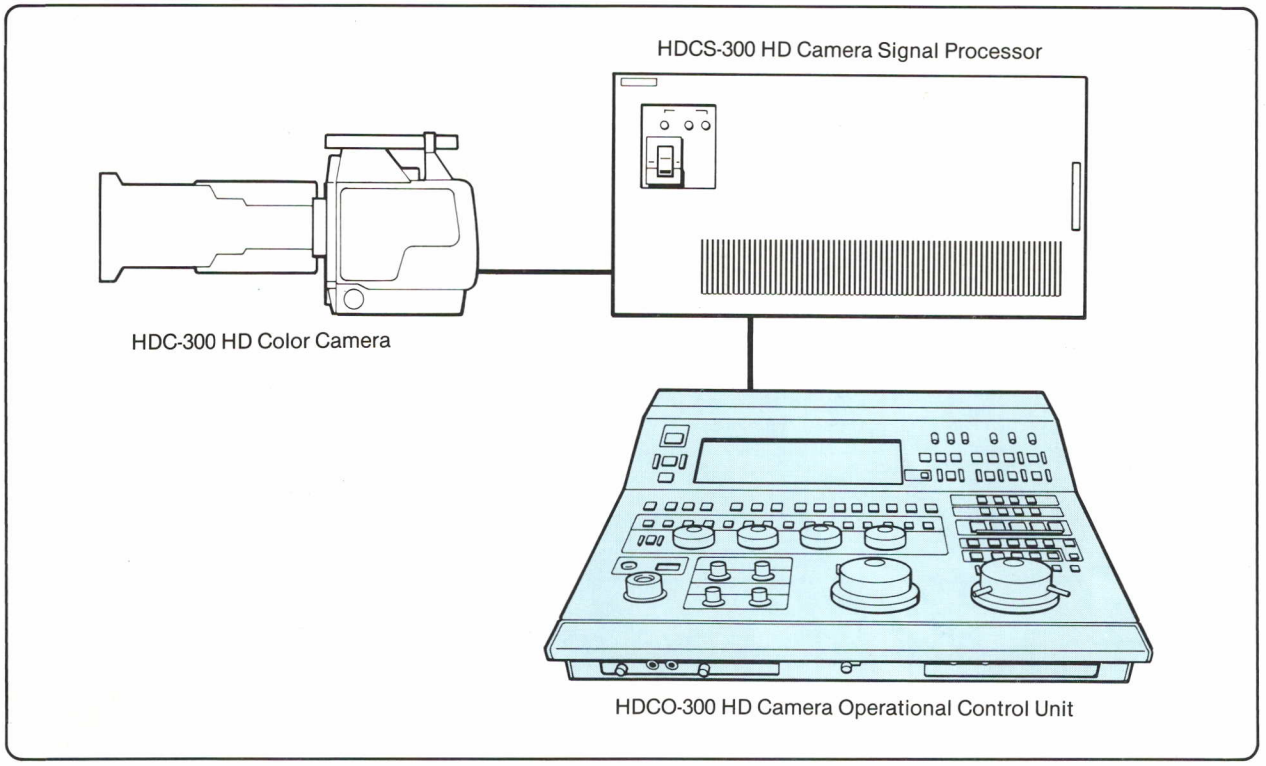
Notes on Using This Manual

Names of switches and buttons

[ ] in the text shows the names of buttons and switches corresponding to the indications on the unit.

Component name



The following abbreviations may be used on switches and the EL (Electro Luminescent) Display as well as in operation manuals to indicate each component and part of the camera system.

Type	Switch/EL Display indication	Operation manual indication
HDC-300	**CHU** (camera head unit)	**Camera head**
HDCO-300	**PANEL**	**Panel**
HDCS-300	**CCU** (camera control unit)	**CCU**

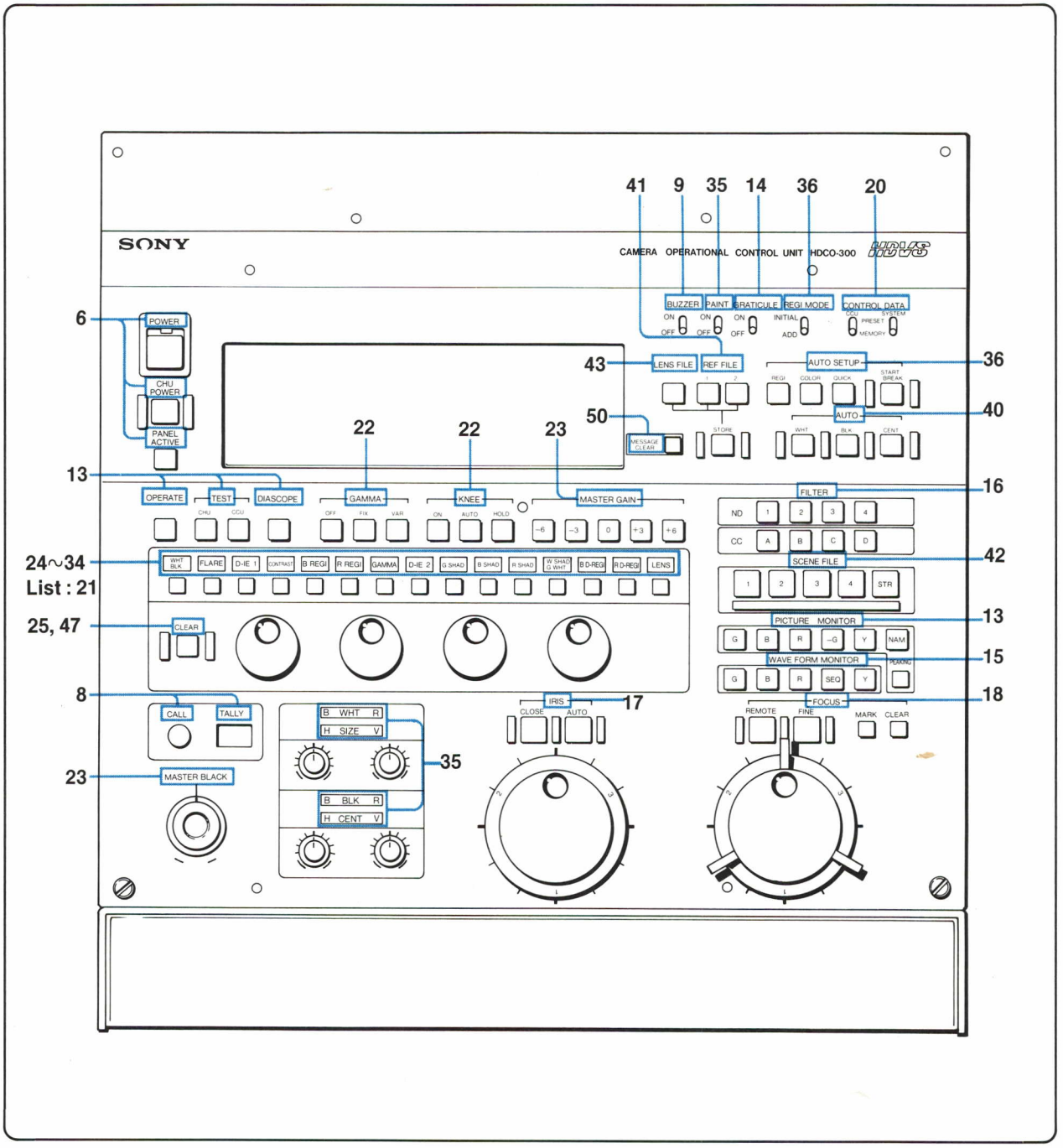
Abbreviations

The following abbreviations are mainly used for switch indication and the EL Display.	
WHT	white
BLK	black
CENT	centering

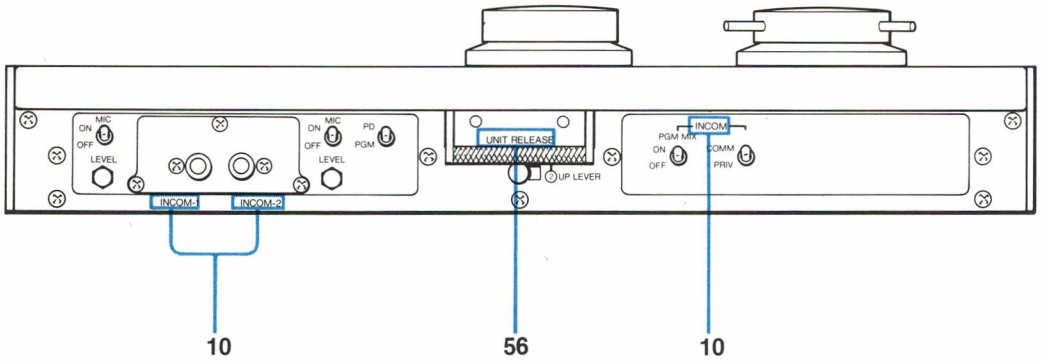
Any abbreviations other than the above are explained on the pages where they appear.

Refer Pages for Parts and Controls

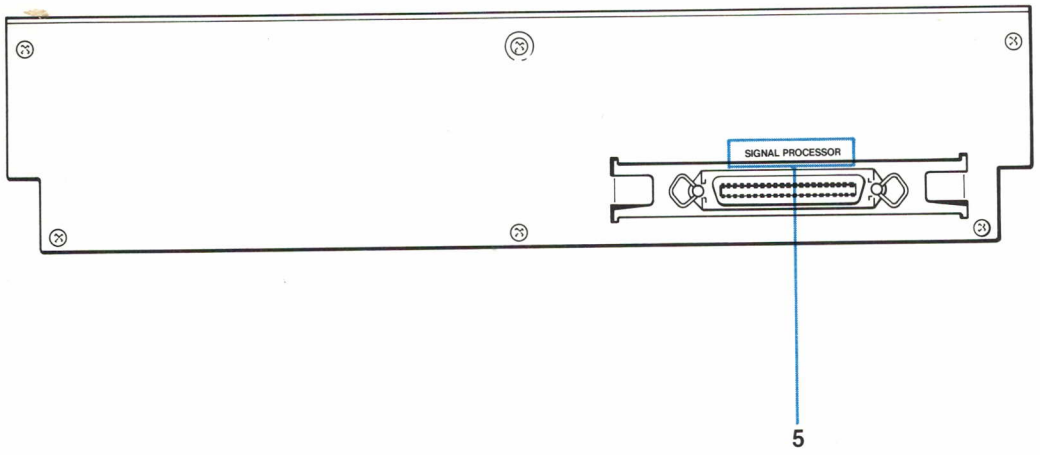
Operation Panel



Front Panel

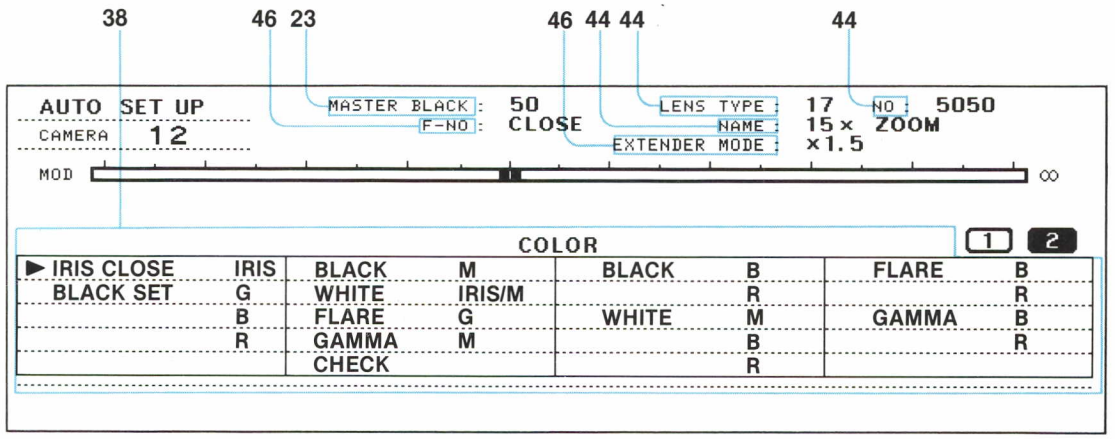


Rear Panel

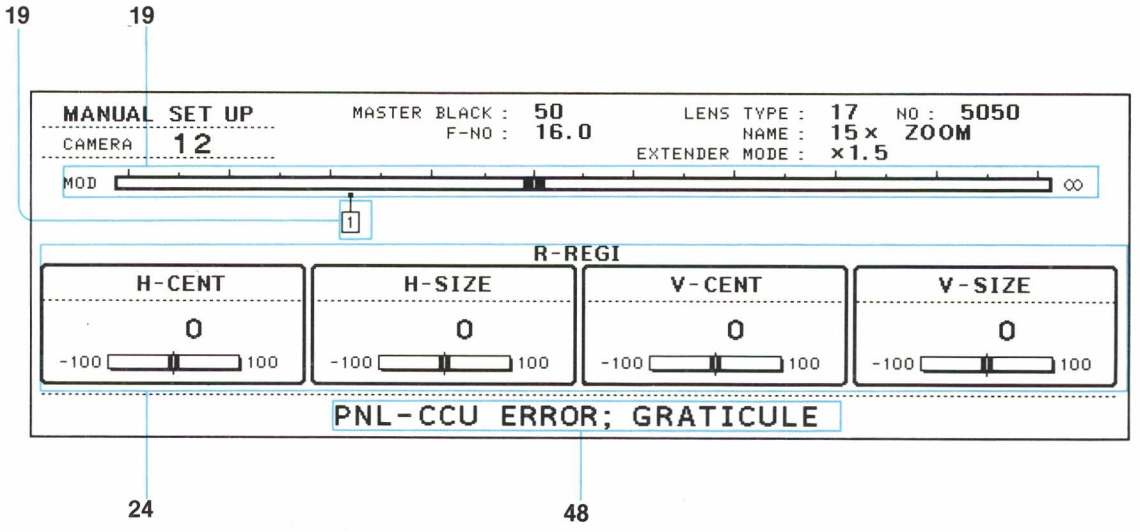


EL (Electro Luminescent) Display

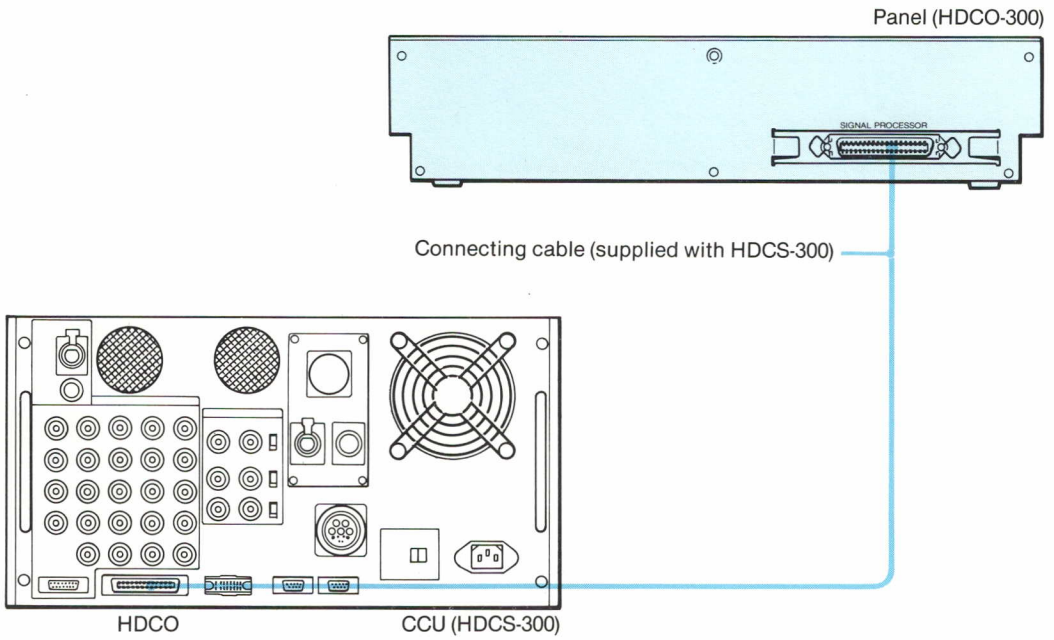
Auto/Auto-setup mode



Manual mode



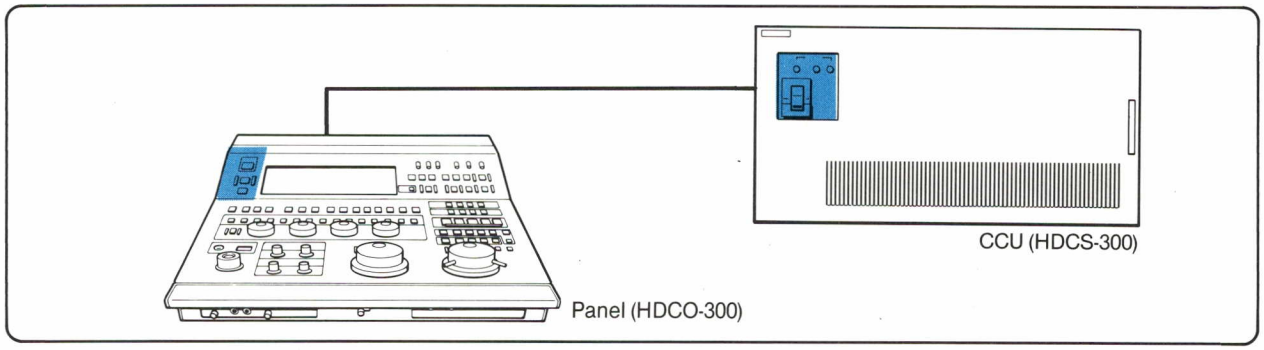
Connection to the Sony HDCS-300 Camera Control Unit



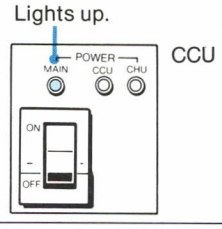
For details on connections including peripheral devices, refer to the HDCS-300 operation manual.

Supplying the Power

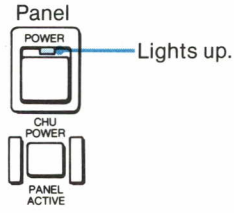
Turning on the System



1 Turn on the POWER switch of the CCU.

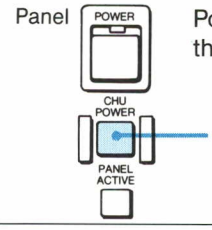


2 Depress the POWER button of the panel.



3 Press the CHU POWER button of the panel.

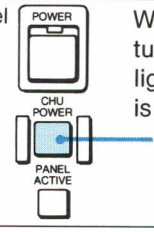
When the POWER switch of the camera head is ON



Power is supplied to the camera.

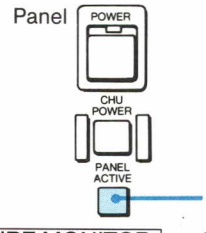
Lights up.

When the POWER switch of the camera head is OFF



When the switch is turned ON, the lamp lights and the power is supplied.

Flashes.

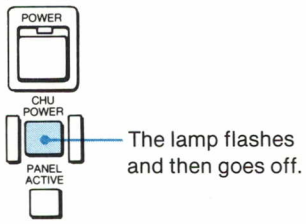
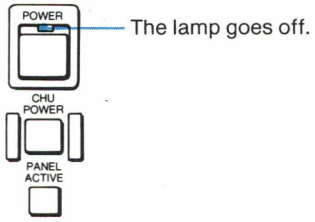
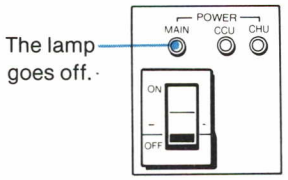


Ready to operate when the lamp is lit.

Buttons other than the PICTURE MONITOR and WF MONITOR buttons do not operate while the lamp is off.

It is necessary to warm up the camera tube for about 30 minutes.

Turning Off

1 Press the [CHU POWER] switch.	2 Press the [POWER] switch of the camera.	3 Turn off the [POWER] switch of the CCU.
(Panel)  The lamp flashes and then goes off. The camera head automatically enters a closing state (selecting an ND-4 filter for protection of the camera tube and closing the iris).	(Panel)  The lamp goes off.	(CCU)  The lamp goes off.

You can turn off the camera head while maintaining the power supply to other components. To do so, simply turn off the [POWER] switch of the camera head.

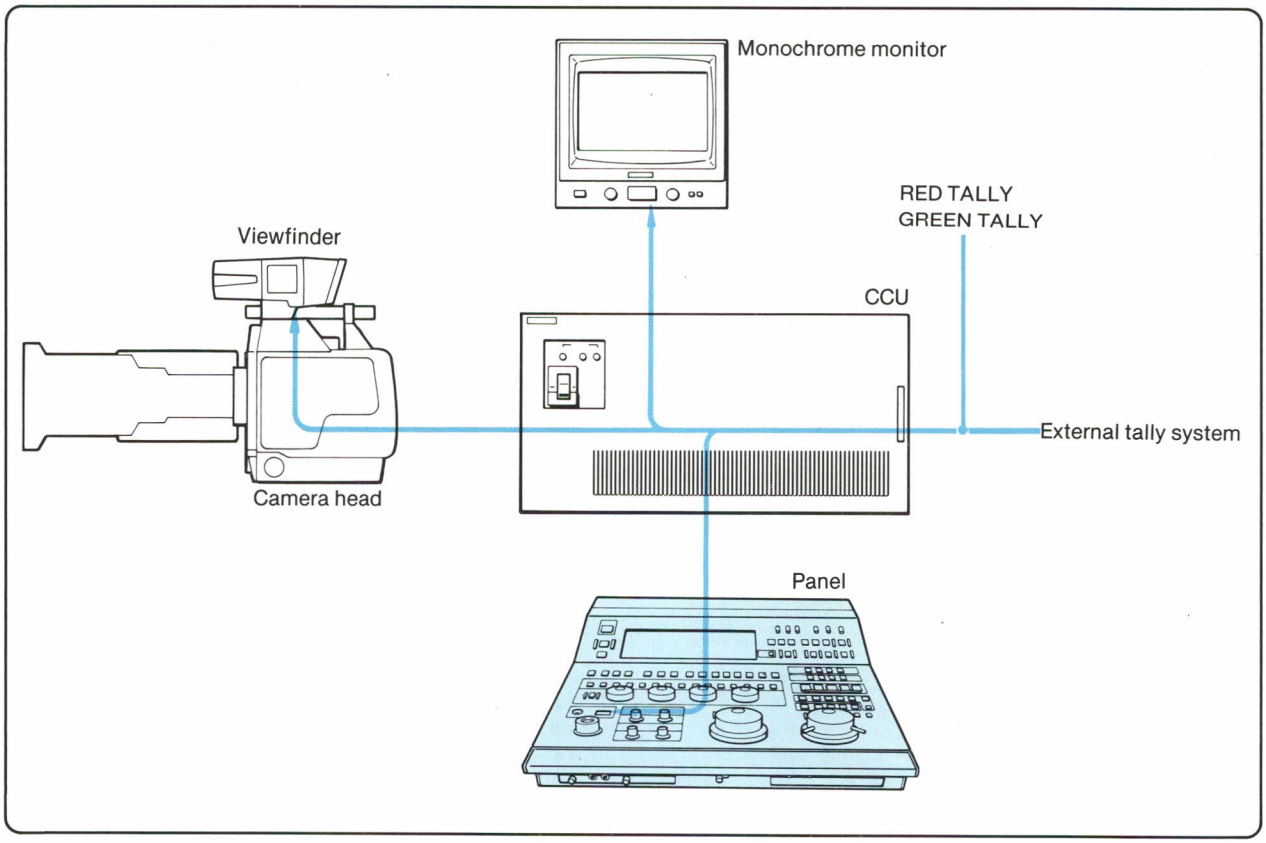
Precautions

When making adjustments related to registration ([REGI] function for AUTO SETUP and the [B D-REGI] and [R D-REGI] functions for dial adjustments), it takes about several tens of seconds to internally hold the compensation values.
Wait at least 30 seconds before turning off the power after making these adjustments.

TALLY and INCOM (Intercom)

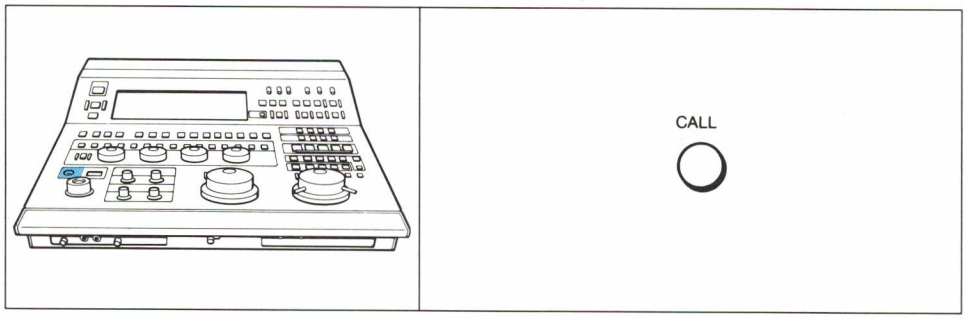
TALLY

Signal route



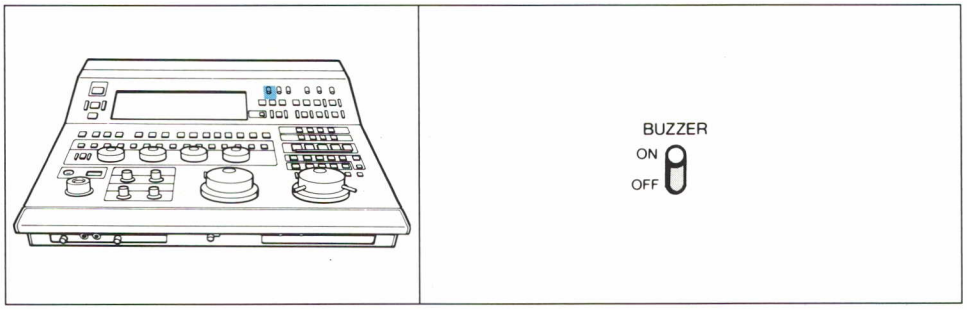
The RED TALLY of the panel lights up when the camera head's CALL button is pressed.
(It goes off when overlapped with the red tally signal sent from the external tally system.)

Cameraman call



CALL	While this button is pressed, both the camera head's tally lamp and the viewfinder's red tally lamp remain lit.

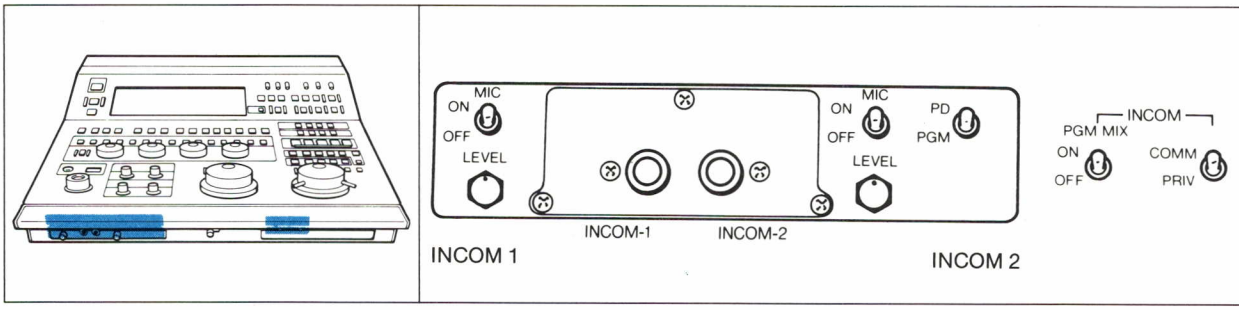
BUZZER



BUZZER	Turn this ON to sound a buzzer whenever the TALLY lamp lights up and an error message is displayed. (Refer to page 48 for error messages.)

INCOM (Intercom)

Setting the switches



MIC	
ON	Uses headset microphone.
OFF	Does not use headset microphone.

PD/PGM	Switches the INCOM 2 circuit. (INCOM 1 is an engineering line.)
PD	Producer line
PGM	Program Audio only

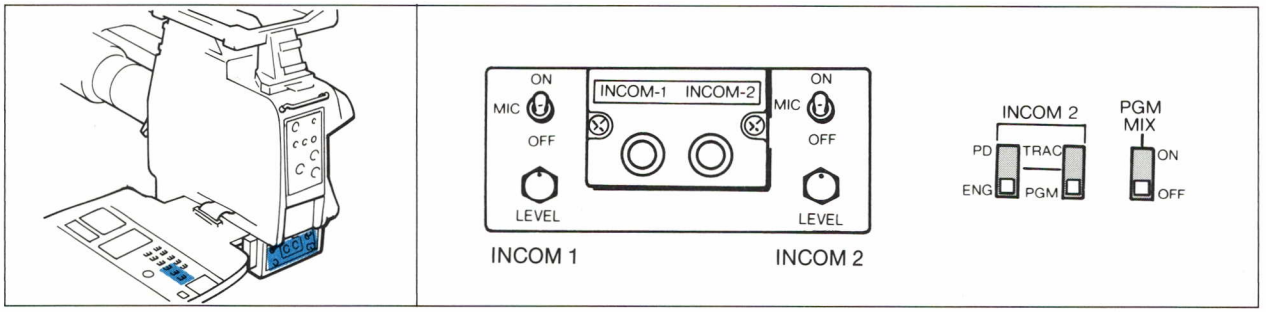
PGM MIX	
ON	Mixes Program Audio with INCOM 1 and 2.
OFF	Does not mix Program Audio.

COMM/PRIV	
COMM	Connects to external intercom lines.
PRIV	Disconnects to external intercom lines.

Abbreviations

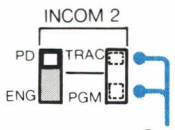
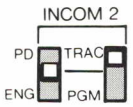
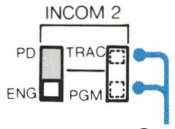
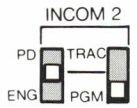
PD	producer
PGM	program
COMM	common
PRIV	private

Camera head switches



MIC	
ON	Uses headset microphone.
OFF	Does not use headset microphone.

LEVEL	Adjustment controls for voice received

INCOM 2	Switches the INCOM 2 circuit. (INCOM 1 is an engineering line.)
 Set to either position. Producer line	 Tracker
 Set to either position. Engineering line	 Program audio only

Tracker function

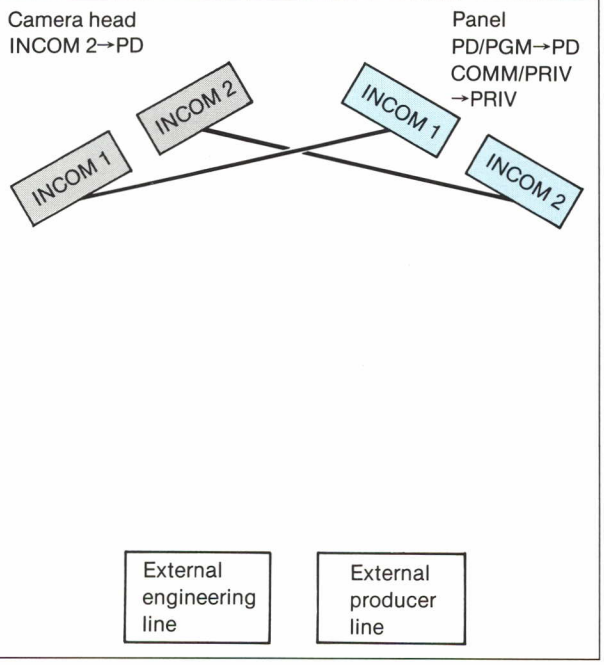
When the MIC switch of INCOM 2 is:	
ON	Can communicate with INCOM 1 of the camera head and panel.
OFF	Can receive only INCOM 1 of the camera head.

PGM MIX	
ON	Receives Program Audio on INCOM 1 and 2.
OFF	Does not receive Program Audio.

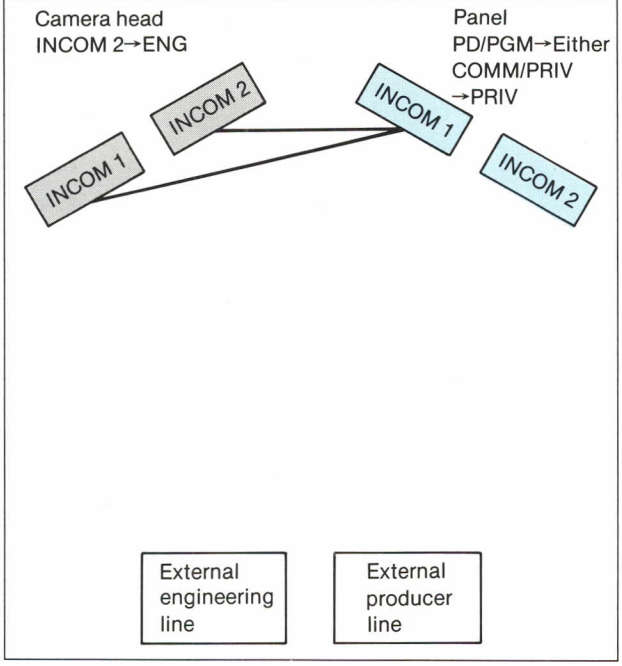
Abbreviations
ENG engineering
TRAC tracker

Communication line

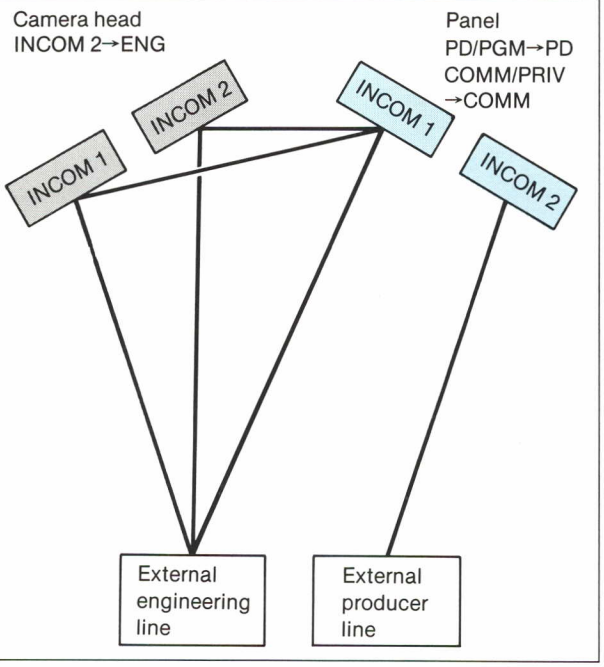
Example 1



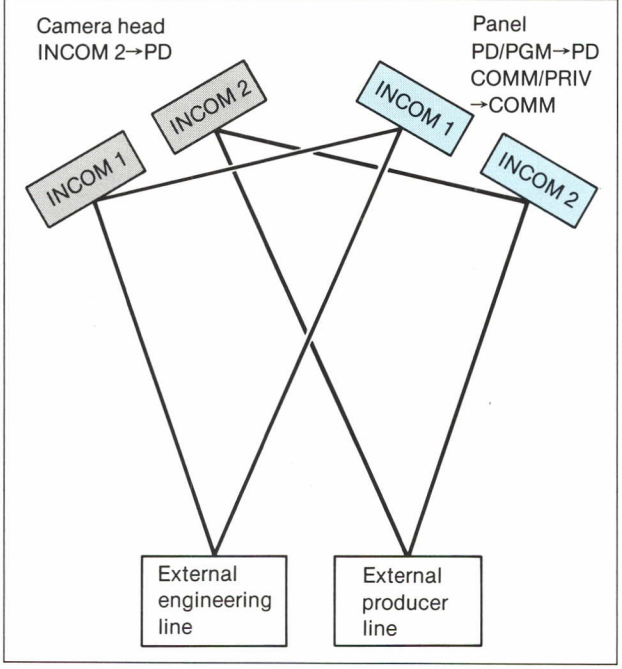
Example 2



Example 3



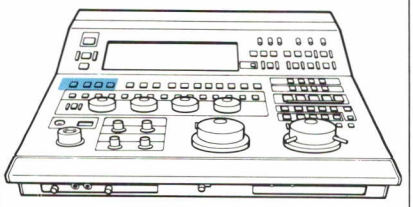
Example 4

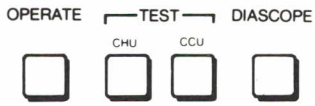


External engineering line and external producer line
Connect to CCU (HDCS-300).

Switching the Output

Screen Output



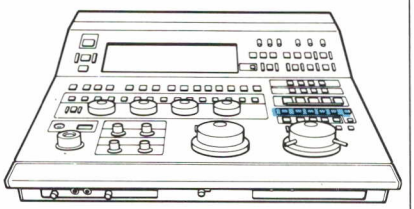


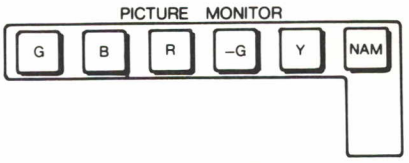
Press to light the corresponding lamp.

OPERATE	Camera screen
CHU	Sawtooth waveform test signals generated by the camera head
CCU	Test signals, such as a color bar, generated by the CCU
DIASCOPE	Test pattern built in the lens to be used at AUTO SETUP (See page 36.)

CHU and CCU
Both may be lit. Test signals generated by the CCU (color bar, etc.) will be output.

Picture Monitor Screen





Press to light the corresponding lamp.

-G	B–G signal by pressing the B and -G buttons R–G signal by pressing the R and -G buttons
NAM	Maximum value among G, B, and R signals

-G

- When the Y and G lamps are lit, pressing -G selects the R–G signal.
- To turn off the -G signal, press either the Y button (to select the Y signal) or the -G button again (to select the R or B signal).

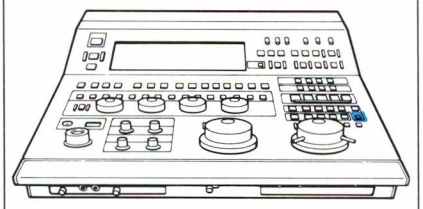
Y

Press the Y button. The Y signal can be obtained from any state.

Monochrome step signal output
A monochrome step signal can be output in place of a color bar test signal by changing the switch built in the CCU. For details, refer to the HDCS-300 maintenance manual.

Abbreviation
NAM non-additive mixing

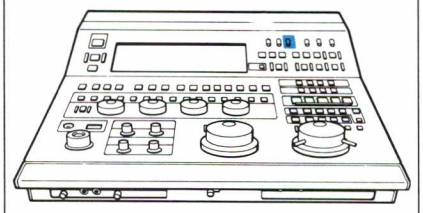
Enhancing the contour of the picture monitor screen



PEAKING

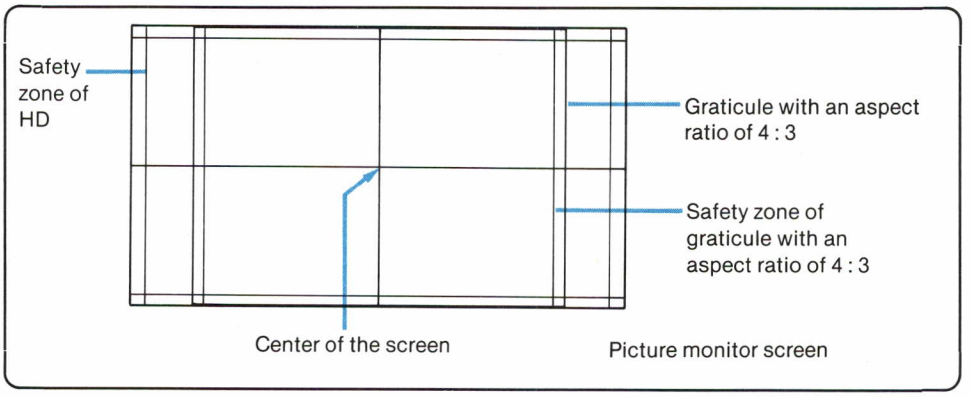
Press to light the lamp.

Displaying the screen graticule on the picture monitor



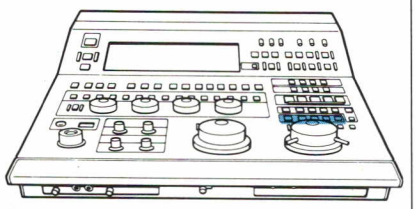
GRATICULE
ON
OFF

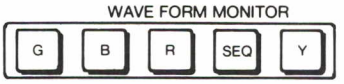
Turn the GRATICULE switch on.


Safety zone of HD
Graticule with an aspect ratio of 4 : 3
Safety zone of graticule with an aspect ratio of 4 : 3
Center of the screen
Picture monitor screen

Indication of safety zone (effective screen)
Change the switch setting in the CCU. For details, refer to the HDCS-300 maintenance manual.

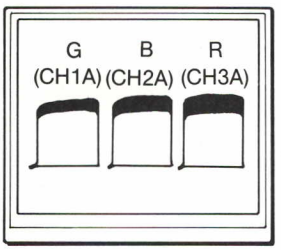
Waveform Monitor





Press the WF MONITOR button.
The lamp lights up.

SEQ Displays G, B, and R signals simultaneously.



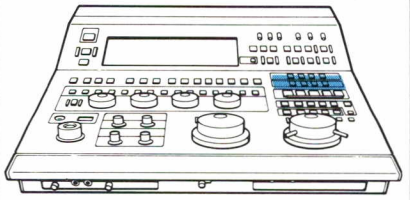
This displays waveforms of the signals input to the Tektronix 1730HD waveform Monitor's input connectors CH1A, CH2A and CH3A.

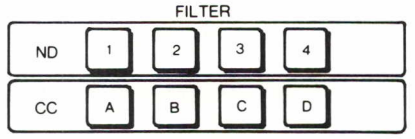
Press two or all of G, B and R switches simultaneously to monitor two or three waveforms layered together.

Abbreviation
SEQ sequential

Remote Control of the Camera Head and Lens

Selecting a Camera Head Built-in Filter





Press one button each of the ND and CC button groups to light their corresponding lamps.

ND		
1	CLEAR	Completely transparent
2	1/4 ND	ND filter to reduce lighting to 1/4
3	1/16 ND	ND filter to reduce lighting to 1/16
4	CAP	Completely closed

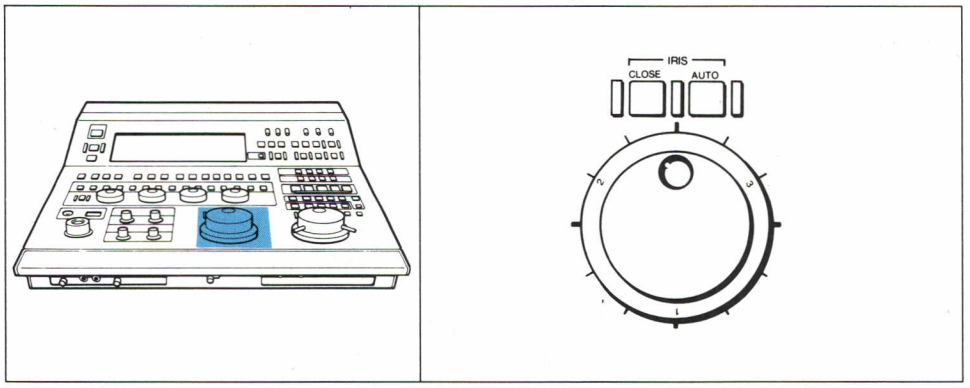
CC		
A	3200K	Use when color temperature of lamp is 3200K
B	4300K	Use when color temperature of lamp is 4300K
C	6300K	Use when color temperature of lamp is 6300K
D	EFFECT	Cross filter for special effects

When turning the power on

Turning off the camera head automatically switches the filter to ND-4 (capping) to protect the camera tube. The camera head remains capped when the power is turned on again. Select a setting from ND-1 to ND-3 before starting to shoot.

Abbreviations
ND neutral density
CC color compensation

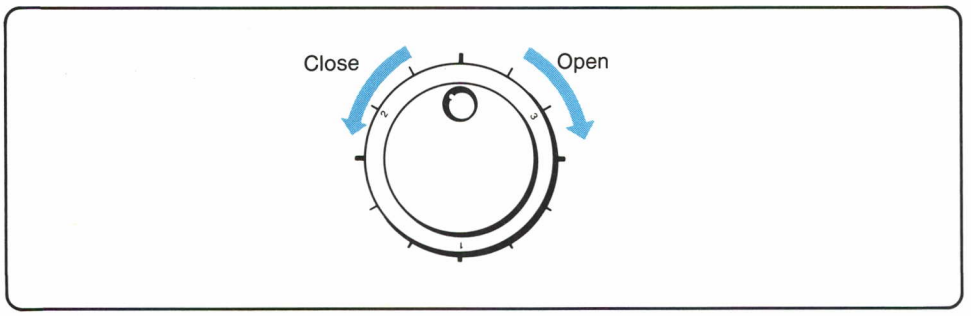
Iris



Set the IRIS control mode of the lens to any of those allowing control from the camera head (AUTO/MANUAL → AUTO, SERVO/MANUAL → SERVO, etc.).

Manual adjustment

Turn the dial.



Automatic adjustment

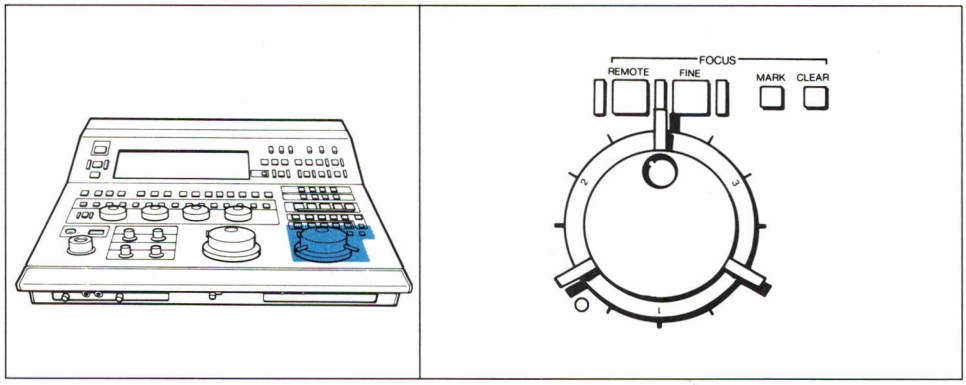
Press the AUTO button. The lamp lights up.
The iris is automatically set to the optimum value.
Fine adjustments can be made by turning the dial. (Range: Automatically adjusted value ± 0.5 iris)

Capping

Press the CLOSE button. The lamp lights up.
The iris is closed.
Press it again to reset the iris to the setting prior to closing. The lamp goes off. In the manual adjustment mode, the iris is reset to the previously adjusted value.

Indication of iris value
The iris value can be displayed on the EL Display. For details, refer to page 43 to 46.

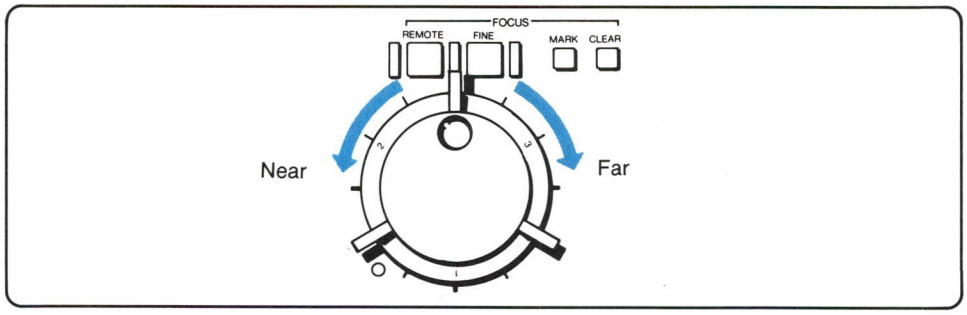
Focusing



Turn the focus mode change switch on the lens to "external adjustment".

Rough adjustment

Press the [REMOTE] button. The lamp lights up. Turn the dial to adjust.

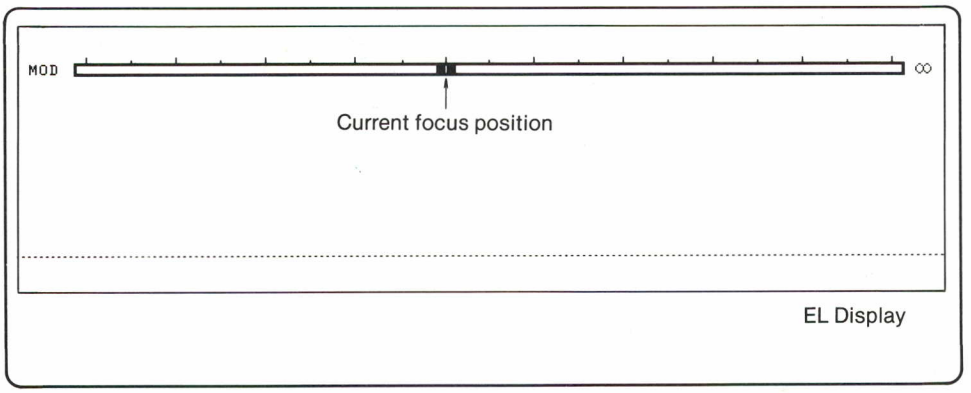


Fine adjustment

Press the [FINE] button. The lamp lights up. Turn the dial to adjust. Be sure to press it while the [REMOTE] lamp is lit.

Indicating the focus position

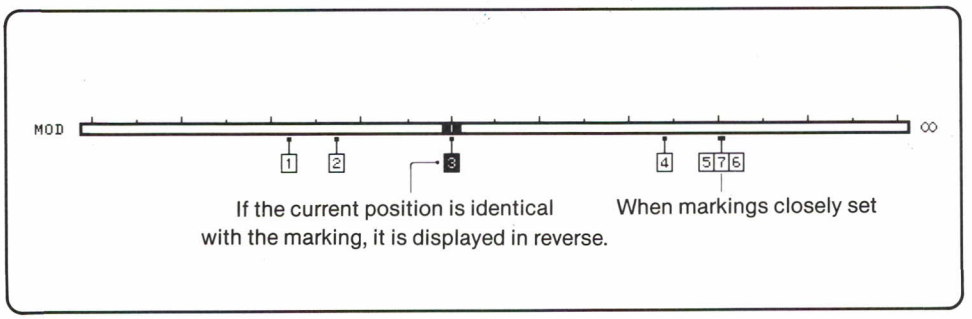
When the lens has a communication function for the focus position (distance ring position), the following indications are displayed.



These indications also appear when focusing on the camera head.

Marking the distance ring position

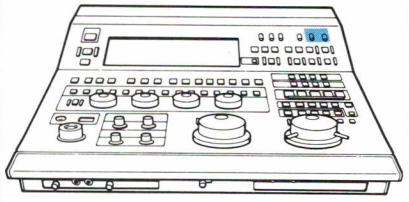
Every time the [MARK] button is pressed, up to 35 marks are set (1,2,3, ..., 9, A,B,C, ..., Z). Press the [CLEAR] button to delete all markings.



Abbreviation
MOD minimum object distance

Adjustments

Setting the Control Data Switches

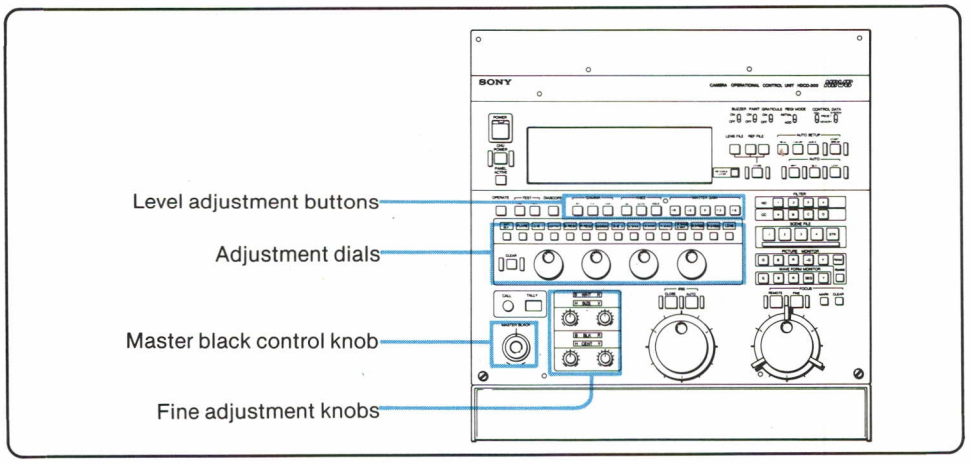


Set the switch to MEMORY to adjust the screen level or registration on the panel.
Set the switch to PRESET to carry out standard state settings using the internal adjustment volumes of the CCU or camera head.

PRESET	The screen level and registration are determined by adjustments on the CCU or camera. Correction assumes the control range center value.
MEMORY	The screen level and registration take values corrected by the memory-retained data.

CCU	Only items adjustable on the CCU among screen level adjustment items
SYSTEM	All screen level and registration adjustment items

Adjustment Item List



Level adjustment buttons (pages 22 and 23)
GAMMA
KNEE
MASTER GAIN

Master black control knob (page 23)
MASTER BLACK

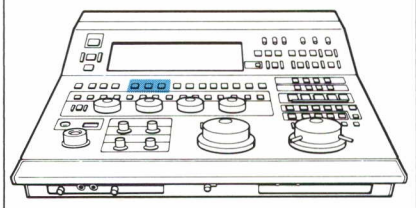
Adjustment dials

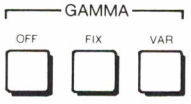
Selectors (from left)	Refer pages	Adjustment items			
		Dial 1 (leftmost)	Dial 2	Dial 3	Dial 4
WHT/BLACK	28	B BLK	R BLK	B WHT	R WHT
FLARE	30	G FLARE	B FLARE	R FLARE	——
D-IE 1	31	DETAIL GAIN	THRESHOLD	CRISP	FREQUENCY
CONTRAST	30	M GAMMA	KNEE	SLOPE	BLACK GAMMA
B REGI	25	H-CENT	H-SIZE	V-CENT	V-SIZE
R REGI	25	H-CENT	H-SIZE	V-CENT	V-SIZE
GAMMA	29	M GAMMA	B-GAMMA	R GAMMA	BLACK GAMMA
D-IE 2	31	LIMIT LEVEL	LIMIT CURVE	V RATIO	SOURCE
G SHAD	32	H-SAW	H-PARA	V-SAW	V-PARA
B SHAD	32	H-SAW	H-PARA	V-SAW	V-PARA
R SHAD	32	H-SAW	H-PARA	V-SAW	V-PARA
W SHAD/ G WHT	28 33	G-WHT SHADING	B WHT SHADING	R WHT SHADING	G WHITE
B D-REGI	26	H-POSITION	V-POSITION	H CORRECTION	V CORRECTION
R D-REGI	26	H-POSITION	V-POSITION	H CORRECTION	V CORRECTION
LENS	34 (43)	DISTORTION	F-NO MAX	F-NO MIN	LENS TYPE

Fine adjustment knobs (page 35)
WHT, BLK (B, R)
SIZE, CENT (H, V)

Level Adjustment Buttons and Master Black Control Knob

GAMMA

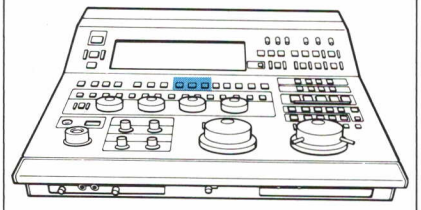


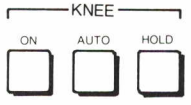


Press to light the corresponding lamp.

OFF	No gamma correction
FIX	Corrects the gamma (γ = 0.45)
VAR	Corrects the gamma. The γ value is adjusted by turning the control. (See page 29.)

KNEE



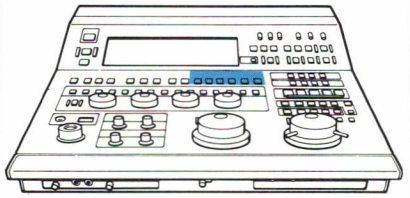


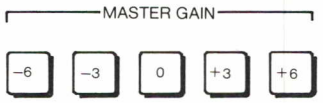
Press to light the corresponding lamp.

ON	Operates Knee. When AUTO is lit: The knee point is automatically adjusted by KNEE AUTO. When AUTO is not lit: The knee point is adjusted manually. (See page 30.)
HOLD	When pressed to light the HOLD lamp while KNEE AUTO is in operation, the knee point at that moment is held.

Abbreviation
VAR variable

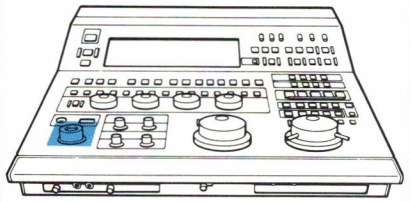
MASTER GAIN

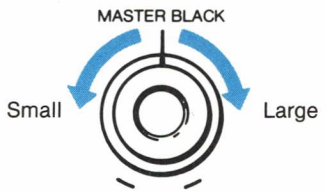




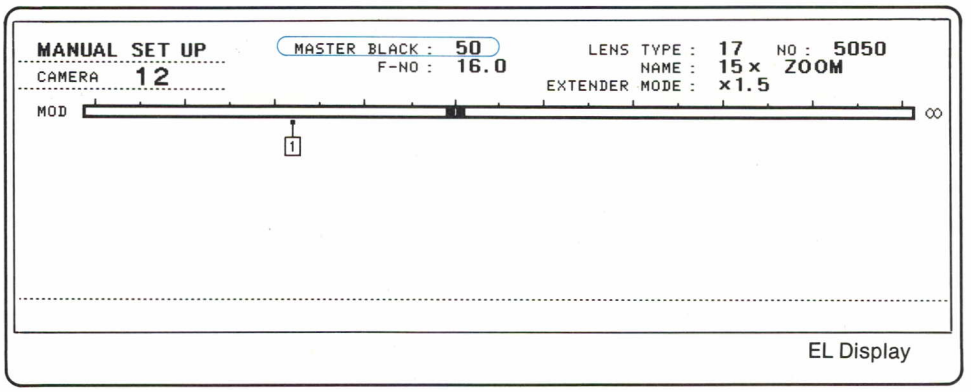
Press to light the corresponding lamp. (Unit: dB)

MASTER BLACK level





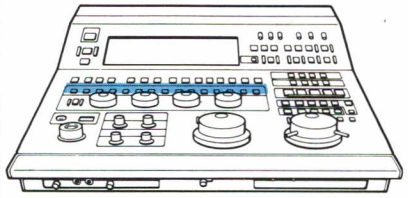
Displaying the MASTER BLACK level



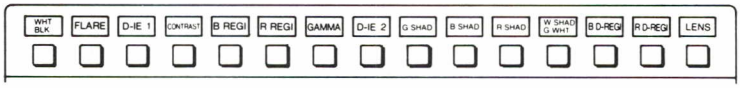
EL Display

Adjustment Dials

Outline

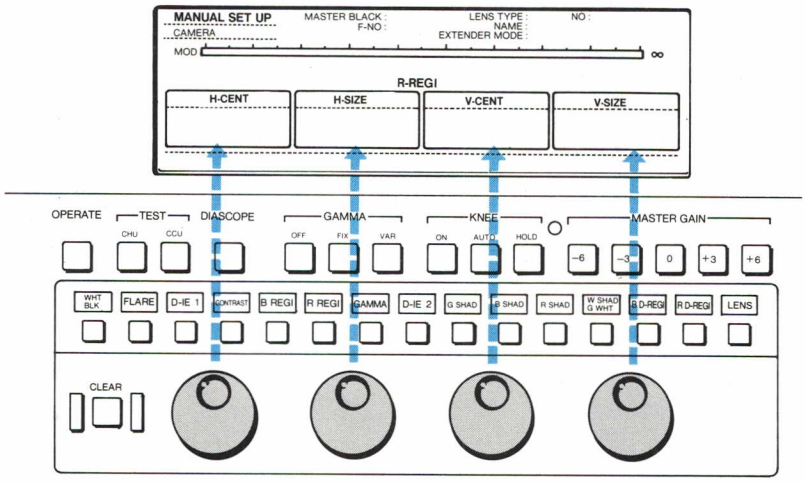


Adjustment item select buttons

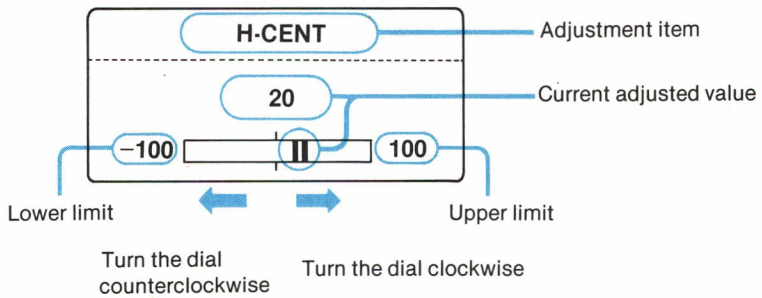


Press to light the corresponding lamp.

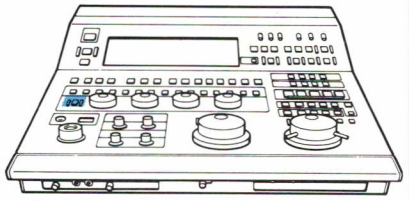
Selected adjustment items displayed

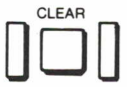


Contents displayed



Erasing the dial adjusted value





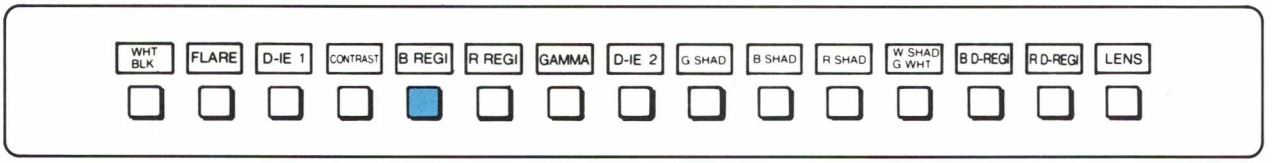
Press the CLEAR button first and then press the adjustment item select button.

CLEAR	The selected item's adjusted value is erased, and the system is reset to the AUTO SETUP, automatic adjustment or power ON state.

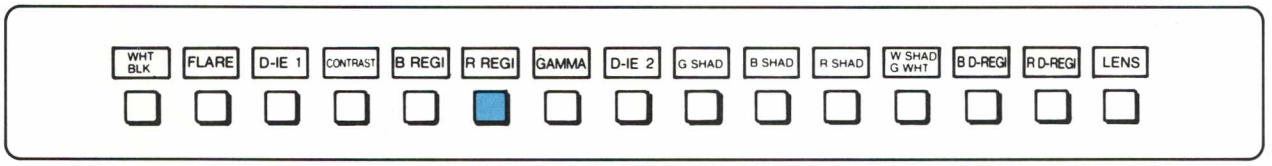
Registration

Size and centering

When adjusting the B signal

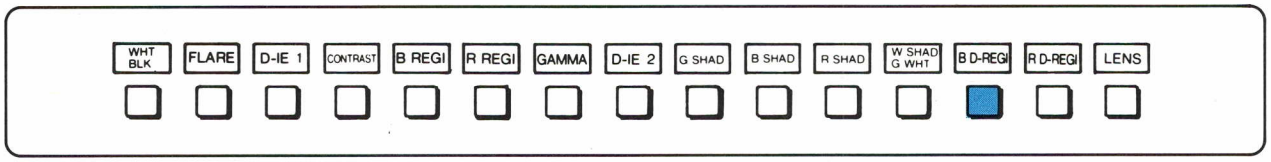


When adjusting the R signal

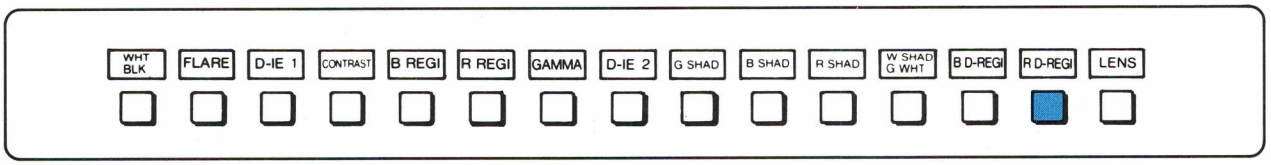


Items	H-CENT (H centering)	H-SIZE (H size)	V-CENT (V centering)	V-SIZE (V size)
Adjustable range	−100∼100	−100∼100	−100∼100	−100∼100
	Left Right	Small Large	Down Up	Small Large

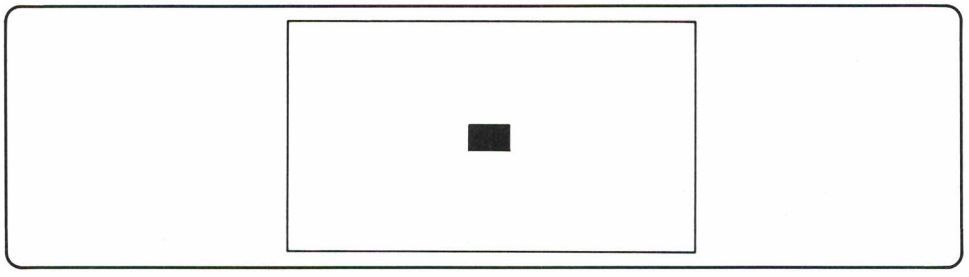
Digital registration correction (partial adjustment)
When adjusting the B signal



When adjusting the R signal



The cursor is displayed on the screen.



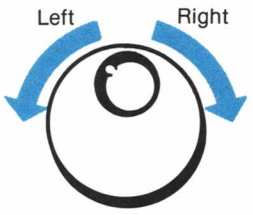
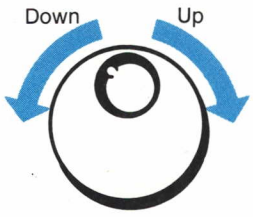
1 Shoot either the HD chart or the test pattern built in the lens. (See "DIASCOPE" on page 13.)

2 Turn the dial to move the cursor to the desired position.

Items	H-POSITION (H position)	V-POSITION (V position)	H-CORRECTION	V-CORRECTION
Adjustable range	1~15	1~15		
	Left Right	Down Up		

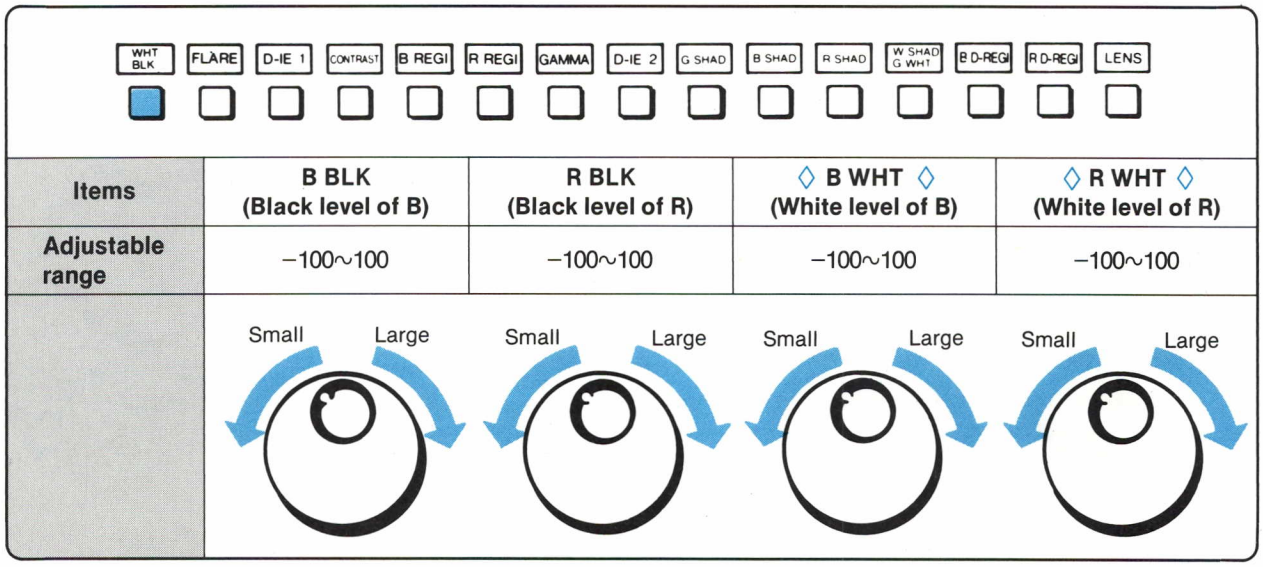
Abbreviation
D-REGI digital registration correction

3 Turn the dial to adjust.

Items	H-POSITION	V-POSITION	H-CORRECTION (H correction)	V-CORRECTION (V correction)
Adjustable range			−100~100	−100~100
				

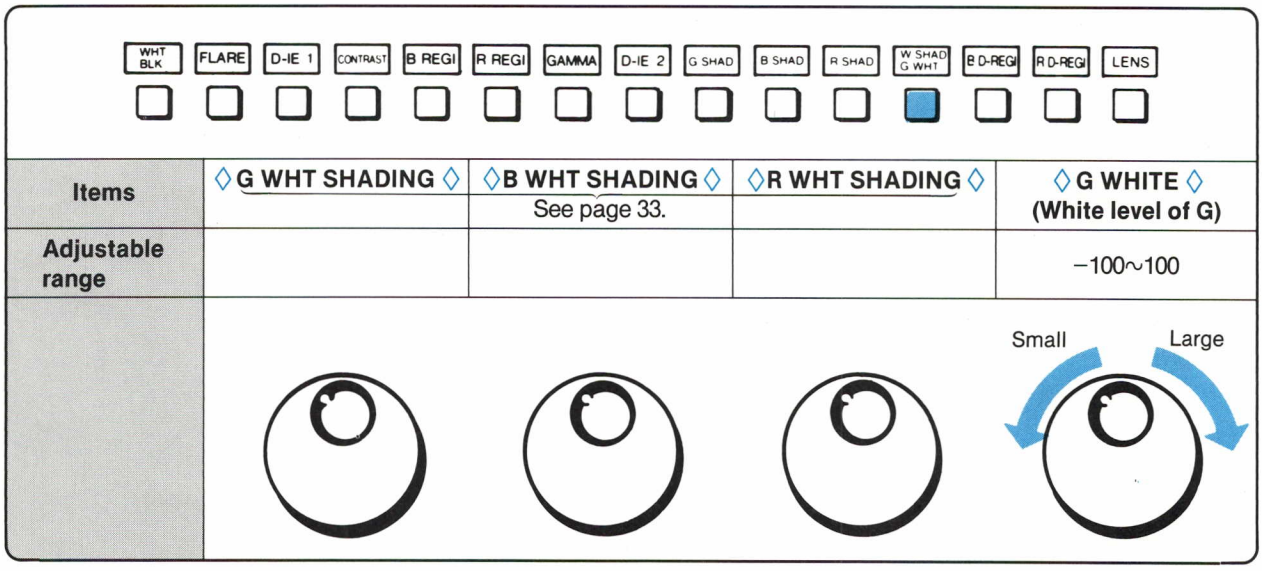
Execute steps 2 to 3 for any positions requiring adjustment. Correction between two adjusted points is made by interpolation or extrapolation.

Black balance and white balance



Items	B BLK (Black level of B)	R BLK (Black level of R)	◊ B WHT ◊ (White level of B)	◊ R WHT ◊ (White level of R)
Adjustable range	−100∼100	−100∼100	−100∼100	−100∼100
	Small Large	Small Large	Small Large	Small Large

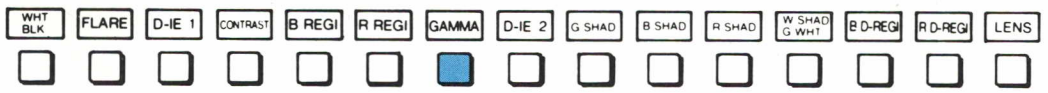
White level of G signal



Items	◊ G WHT SHADING ◊	◊B WHT SHADING◊ See page 33.	◊R WHT SHADING ◊	◊ G WHITE ◊ (White level of G)
Adjustable range				−100∼100
				Small Large

" ◊ ◊ " item display
This indicated the displayed item will be stored in the lens file (page 43). (Only when LENS FILE is lit.)

GAMMA



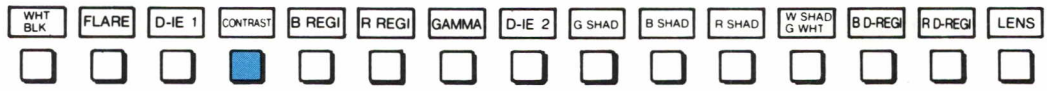
Items	M(aster) GAMMA	B GAMMA	R GAMMA	BLACK GAMMA
	Adjustable only when the VAR lamp of the GAMMA button is lit.			
Adjustable range	−100∼100	−100∼100	−100∼100	−4∼4
	(See illustration below)			(See illustration below)
	Output / Turn clockwise / Input			Output / Turn clockwise / Input

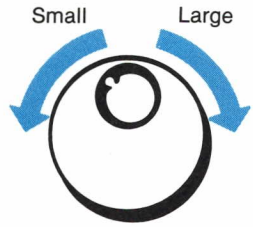
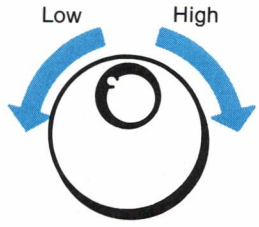
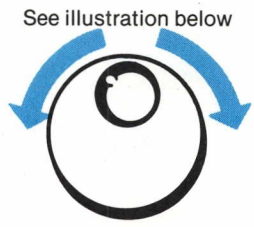
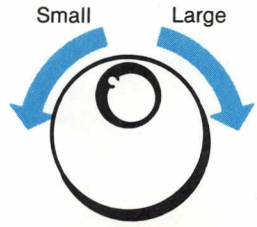
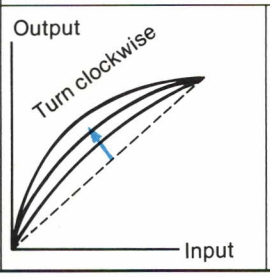
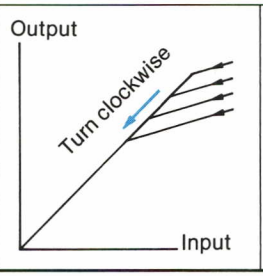
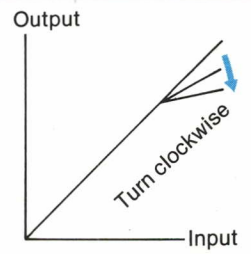
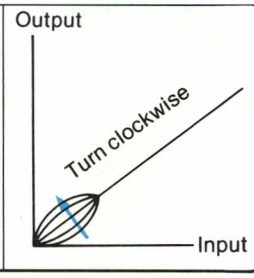
M GAMMA and BLACK GAMMA are adjustable also with the CONTRAST button. (See page 30.)

BLACK GAMMA
Fine adjustment of gradation in the vicinity of the black level.

Abbreviation
M GAMMA master gamma

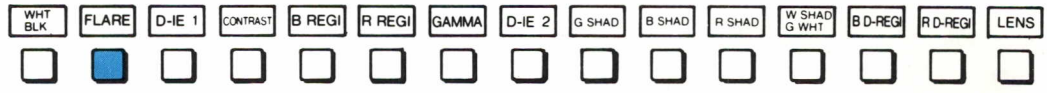
KNEE

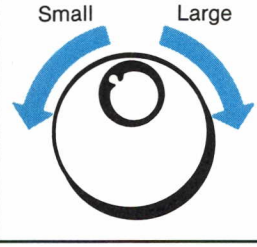
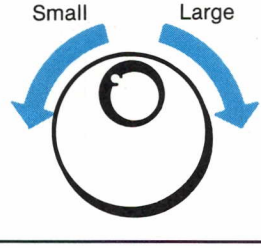
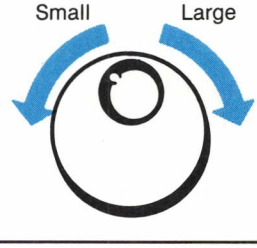


Items	M GAMMA (Master gamma)	KNEE (Knee point)	SLOPE (Slope)	BLACK GAMMA (Black gamma)
Adjustable range	−100∼100	−100∼100	−100∼100	−4∼4
				
				

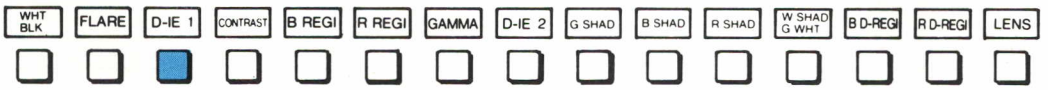
- M GAMMA is adjustable when the VAR or the GAMMA lamp is lit.
- KNEE is adjustable when the KNEE ON lamp is lit.
- SLOPE is adjustable when any of the KNEE lamps is lit.
- BLACK GAMMA is always adjustable irrespective of whether the GAMMA and KNEE lamps are lit or not.

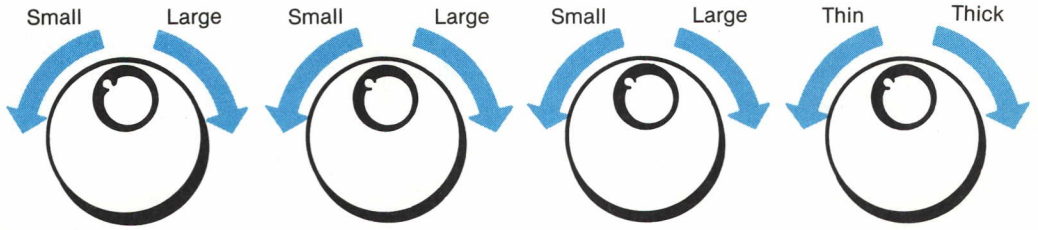
FLARE

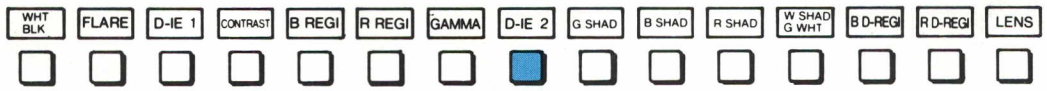


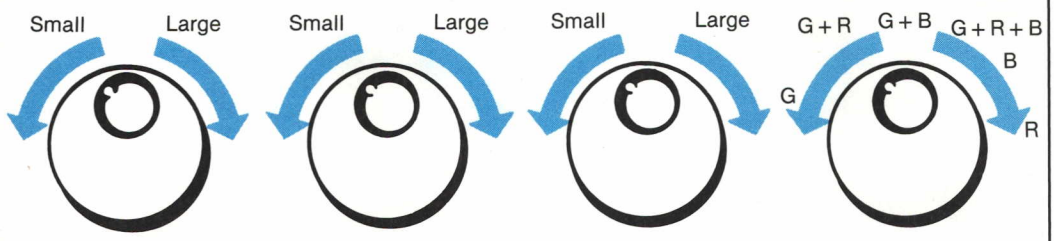
Items	◊ G FLARE ◊ (Flare correction of G)	◊ B FLARE ◊ (Flare correction of B)	◊ R FLARE ◊ (Flare correction of R)	
Adjustable range	−100∼100	−100∼100	−100∼100	
				

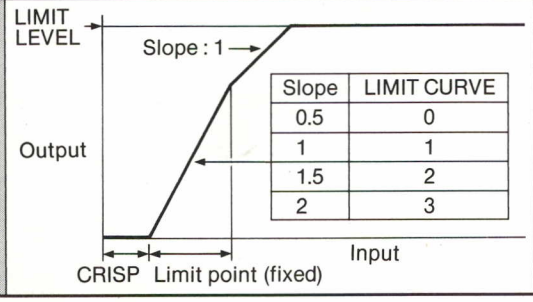
Contour



Items	DETAIL GAIN (Contour correction amount)	THRESHOLD (Changes the correction amount by screen brightness. The correction amount is adjustable.)	CRISP (Detects the minimum contour component. Any component less than the minimum is considered a noise and is not subject to contour correction.)	FREQUENCY (Thickness of contour correction in the horizontal direction.)
Adjustable range	0∼63	0∼7	0∼16	0∼8
				



Items	LIMIT LEVEL (Upper limit after contour correction)	LIMIT CURVE (Shape number of contour correction)	V RATIO (Ratio of vertical correction to horizontal correction)	SOURCE (Original signal for extracting the contour component)
Adjustable range	8∼127	0, 1, 2, 3	0∼8 (same amount at 4)	G, G+R, G+B, G+R+B, B, R
				



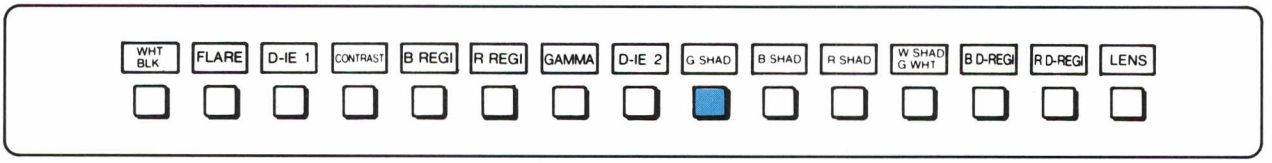
Slope	LIMIT CURVE
0.5	0
1	1
1.5	2
2	3

Abbreviation

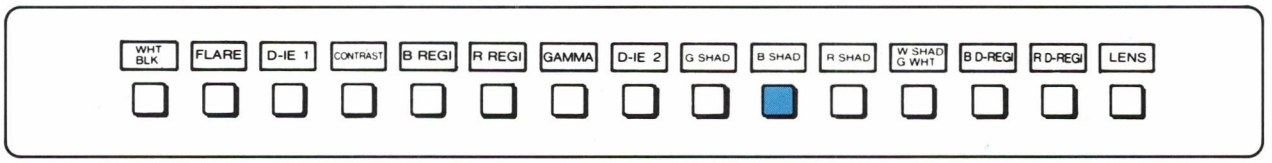
D-IE digital image enhancer
CRISP crispening

SHADING

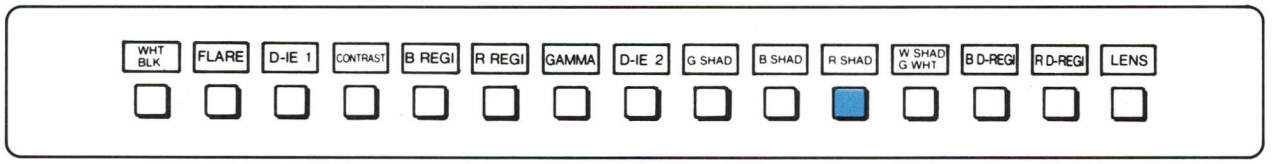
When correcting the shading of the G signal

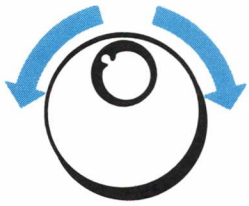
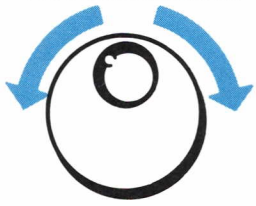
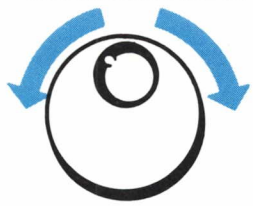
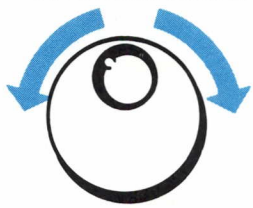
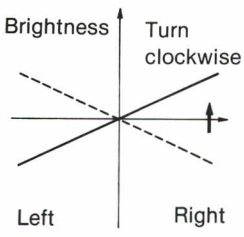
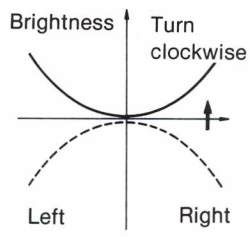
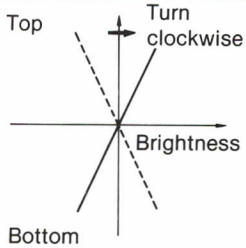
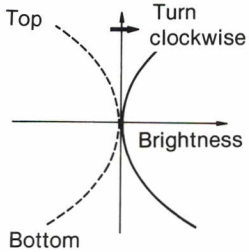


When correcting the shading of the B signal



When correcting the shading of the R signal

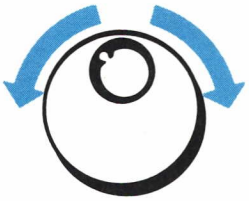
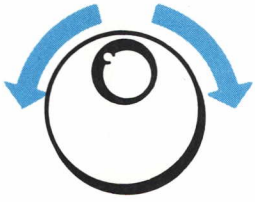
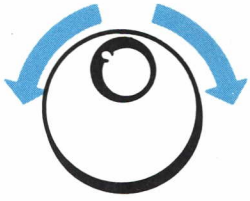
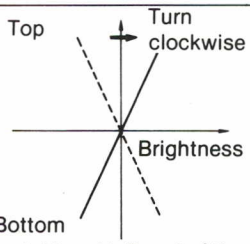


Items	H-SAW (Saw correction in the horizontal direction)	H-PARA (Parabola correction in the horizontal direction)	V-SAW (Saw correction in the vertical direction)	V-PARA (Parabola correction in the vertical direction)
Adjustable range	−100∼100 (See illustration below.)	−100∼100 (See illustration below.)	−100∼100 (See illustration below.)	−100∼100 (See illustration below.)
	See illustration below. 	See illustration below. 	See illustration below. 	See illustration below. 
				

Abbreviation
PARA parabola

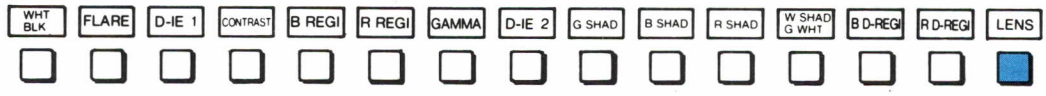
WHITE SHADING

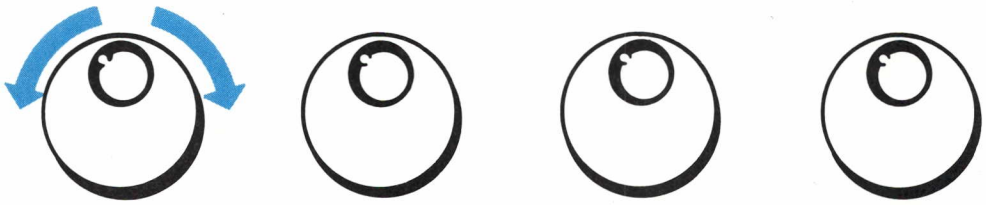
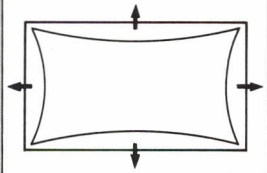
WHT BLK | FLARE | D-IE 1 | CONTRAST | B REGI | R REGI | GAMMA | D-IE 2 | G SHAD | B SHAD | R SHAD | W SHAD G WHT | B D-REGI | R D-REGI | LENS

Items	◊ G WHT SHADING ◊ (White shading correction of the G signal)	◊ B WHT SHADING ◊ (White shading correction of the B signal)	◊ R WHT SHADING (White shading correction of the R signal)	◊ G WHITE ◊ See page 28.
Adjustable range	−100~100 (See illustration below.)	−100~100 (See illustration below.)	−100~100 (See illustration below.)	
	See illustration below. 	See illustration below. 	See illustration below. 	
	 Brightness at in the right and left part of the screen increases.			

" ◊ ◊ " item display
This indicated the displayed item will be stored in the lens file (page 43). (Only when LENS FILE is lit.)

Screen distortion due to lens characteristics



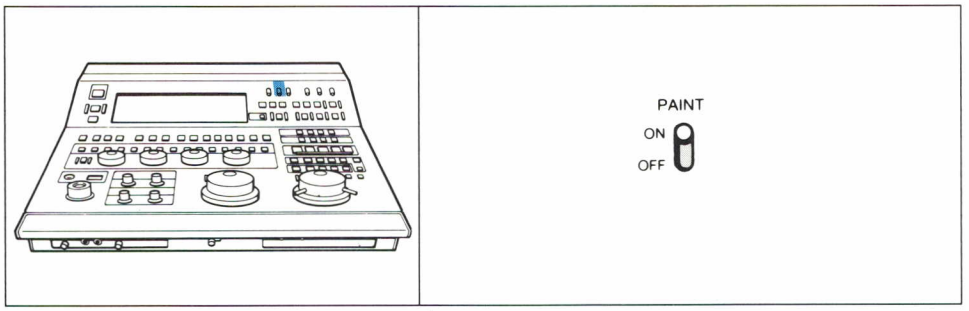
Items	DISTORTION (Screen distortion)	F-NO MAX	F-NO MIN (See page 45.)	LENS TYPE
Adjustable range	−100∼100 (See illustration below.)			
				
	Turn clockwise 			

For details on the correction of screen distortions caused by lens characteristics, refer to "Lens File" on page 43 to 46).

Fine Adjustment Knobs

Used for temporary coloring or fine adjustment after dial adjustment.

Setting the paint switch



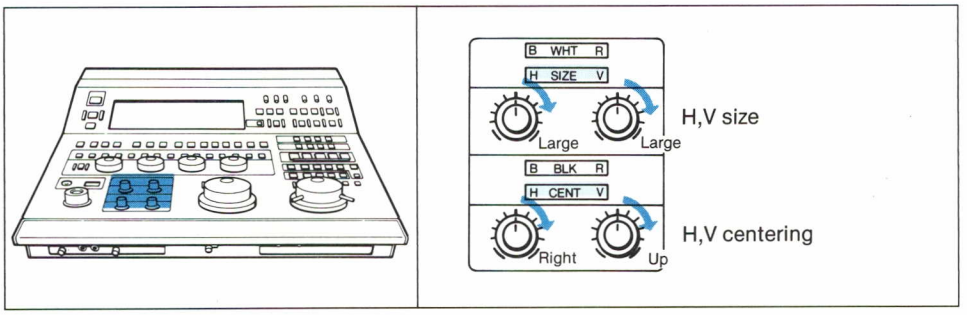
ON	Fine adjustment knob functions.
OFF	Fine adjustment knob does not function.

Size, centering, black balance and white balance

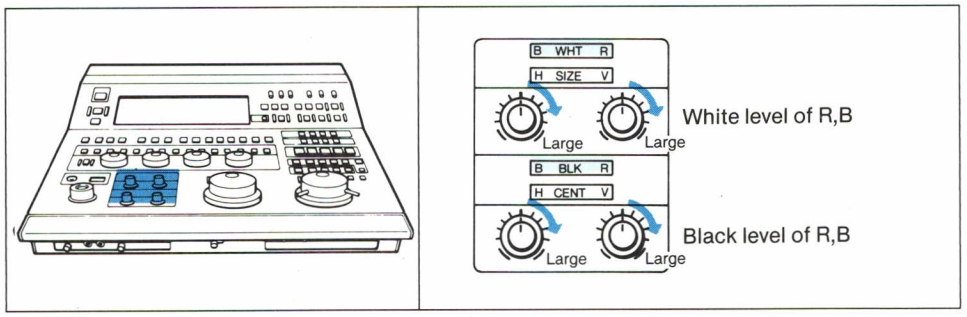
The functions of controls vary depending on the picture monitor screen.

When the PICTURE MONITOR switch is set to either ~~B–G or R–G~~

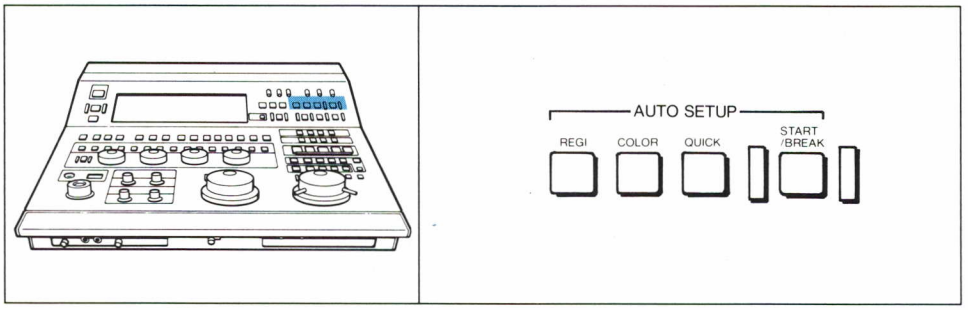
B–G	Size B, centering
R–G	Size R, centering



When the PICTURE MONITOR switch is set to other than B–G or R–G
Black balance, white balance

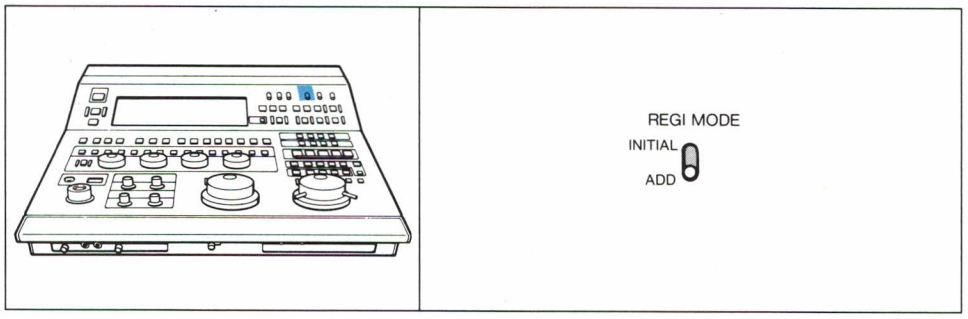


AUTO SETUP



REGI	AUTO SETUP for registration Error detection: 13 × 13 points Correction: 15 × 15 points
COLOR	AUTO SETUP for screen level Automatic adjustment of black set, black balance and white balance
QUICK	Quick AUTO SETUP for registration Error detection: 4 points Post-correction error detection is carried out. AUTO SETUP is completed when the number of detect errors is less than the specified value. QUICK requires less operation time than REGI.

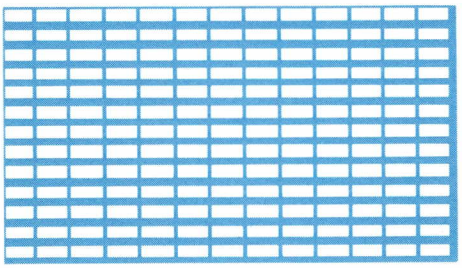
Setting the Registration Mode Switch



Changes the REGI function's auto-setup initial values and computation method.	
INITIAL	Begins adjustment from the initial value, ignoring the previous registration correction data. When adjustment is completed, B D-REGI and R D-REGI data are cleared.
ADD	Begins adjustment after adding the previously set registration auto-setup correction data. When adjustment is completed, B D-REGI and R D-REGI correction data are added.

Operation

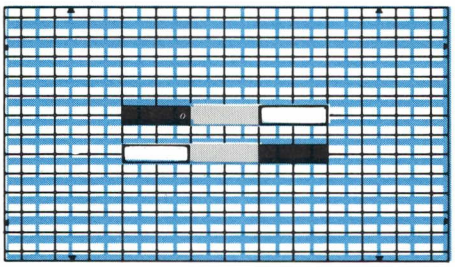
1 Press the [REGI], [COLOR] or [QUICK] button to light the lamp.
A pattern appears on the picture monitor screen and the viewfinder.



[ ]: Measuring area

Press both [REGI] and [COLOR], or both [QUICK] and [COLOR] to execute AUTO SETUP with two functions continuously.

2 Either the HD chart or the test pattern built in the lens is displayed. (See "DIASCOPE" on page 13.)



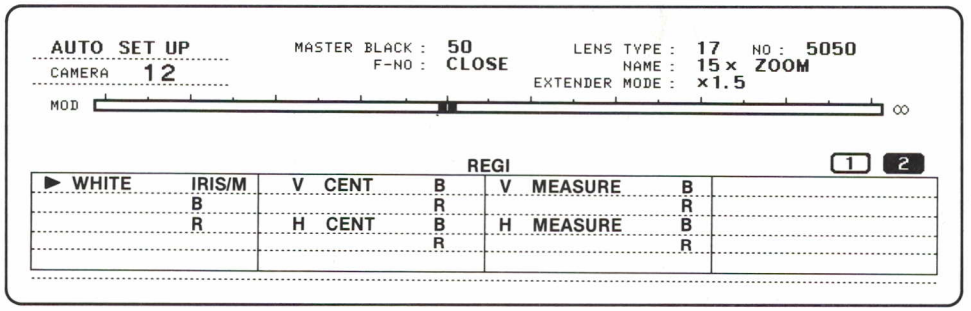
Shoot so that all intersections are within the measuring area.

3 Press [ST/BREAK] to light the ST/BREAK lamp.
AUTO SETUP starts.
A cursor is displayed on the picture monitor screen and the viewfinder when either [REGI] or [QUICK] is selected.

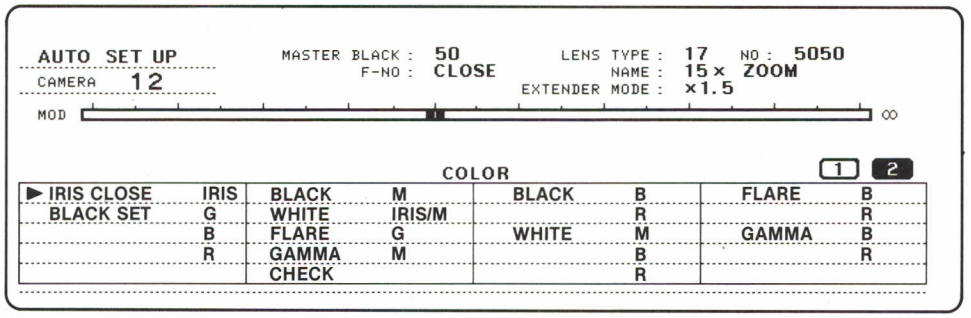
Abbreviation
ST/BREAK start/break

Display during adjustment

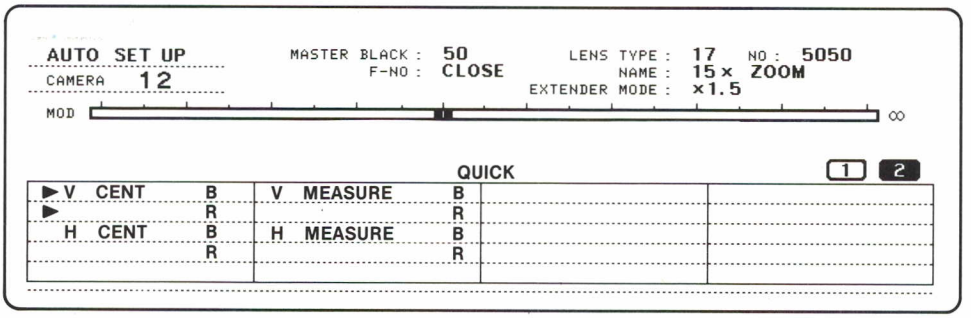
REGI



COLOR



QUICK



▶: Under adjustment
Buttons on the panel do not function.
When adjustment is completed, the button(s) pressed at 1 and ST/BREAK go off.

Adjustment failure

When adjustment ends in failure, the corresponding [REGI], [COLOR] or [QUICK] button flashes while the [ST/BREAK] lamp is lit.
Proceed as follows.

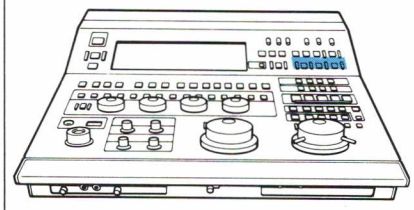
1 Stop the flashing by pressing the [ST/BREAK] button.
Buttons on the panel become active.

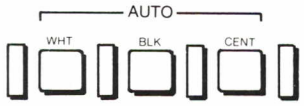
2 Check whether:
- The HD chart is properly located in the screen graticule.
- Iris and focus adjustments are proper.
- Registration error is within the correction range (approx. ±0.4%). If beyond the range, adjust the camera head independently.
- The lighting conditions (maximum level for the G signal = approx. 85~105%) for automatic registration adjustment are correct.

3 Activate AUTO SETUP again.

AUTO

Automatic adjustment of white balance, black balance and centering is possible without using the HD chart.

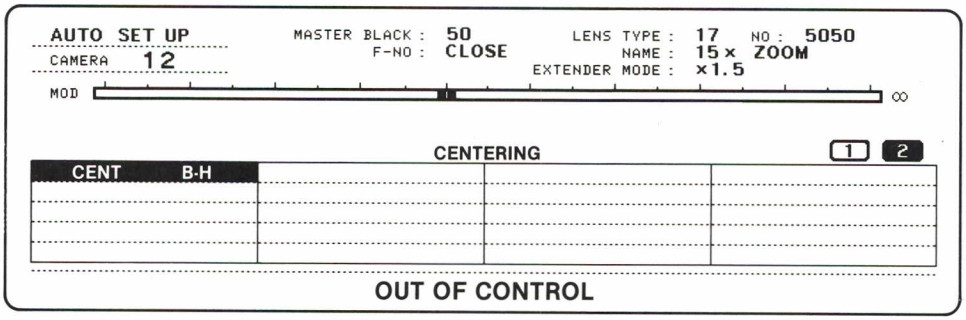




Press to light the corresponding lamp.
When adjustment is completed, the lamp goes off.

WHT	White balance Adjusts the white balance referring to a high luminance portion on the screen.
BLK	Black balance Automatically closes the iris during adjustment.
CENT	Centering Executes registration through the parallel movement of the B and R signals in both the horizontal and vertical directions.

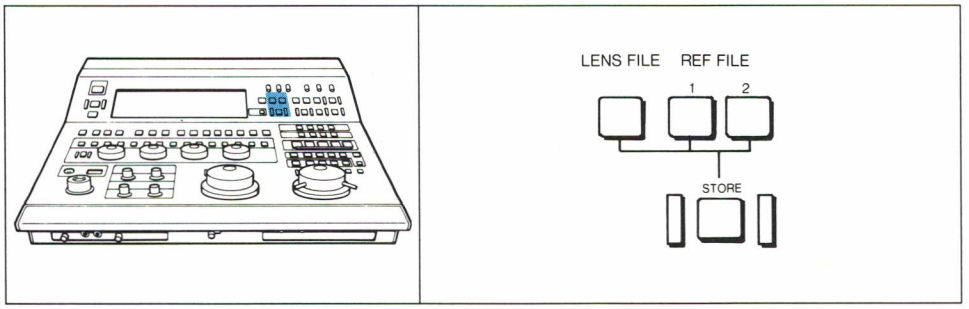
Items which cannot be adjusted



Displayed in reverse.

Files

Reference File



Registers target values for the automatic adjustment of screen levels (COLOR in AUTO SET UP).
Two sets of target values can be registered.

Contents

BLACK LEVEL	Master, B, R
GAMMA	Master, B, R
BLACK GAMMA	
FLARE CORRECTION	G, B, R
WHITE LEVEL	G, B, R

Registration

Both files 1 and 2 are shipped with identical contents. To renew registration, proceed as follows.

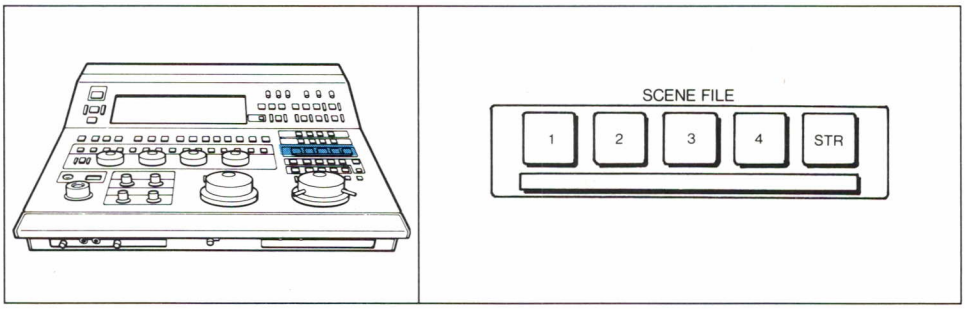
1 Press either the REF FILE 1 or REF FILE 2 button to light the lamp.

2 Press the STORE button.
Current settings are registered in the file.

Call

Press the REF FILE 1 or REF FILE 2 button to light the lamp.
When neither of the REF FILE lamps are lit, FILE 1 is called.

Scene Files



Settings made on the panel can be stored in this file and called up whenever necessary.

Contents

Level

BLACK LEVEL	Master, B, R
FLARE CORRECTION	G, B, R
BLACK GAMMA	
KNEE	
WHITE LEVEL	G, B, R
GAMMA	Master, B, R
PULSE CANCELLER	G, B, R
SLOPE	

SELECT button
GAMMA selection
FILTER selection
GAIN selection

Contour
Adjusted values for items referred to in "CONTOUR 1" and "CONTOUR 2". (See page 31.)

Registration

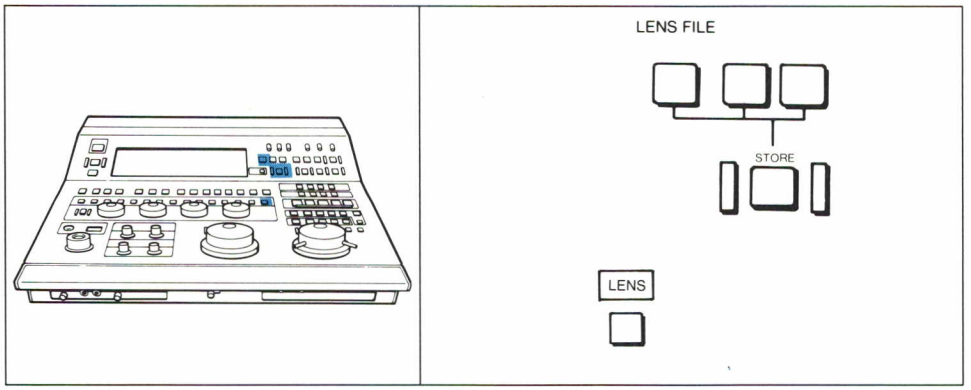
1 Press the [STR] button. The lamp lights up.

2 Press the desired file button (either one of [1] ~ [4]).

Call

Press the desired file button to light the lamp.
The contents of the called file are set on the panel.
The position of adjustment controls has no influence on the display.

Lens File



The lens file performs the following functions.

- Repetitive setup operations required at every lens change are eliminated by registering lens specific information such as screen level and geometric distortion.
- Individual lens data such as name, number and F value can be registered in this file. When registered, information of the installed lens and the current iris value are shown on the EL Display.

Contents

Level

White level	G, B, R
White shading correction	G, B, R
Flare correction	G, B, R

Geometric distortion

Centering—Difference with the standard lens is registered.
Size—Difference with the standard lens is registered.
Screen distortion (DISTORTION)

Lens data indication

Lens number
Lens name
Maximum and minimum F values

Registration

(1) Level, geometric distortion, lens number, lens name

Be sure to execute the registration in a stable environment such as a studio.

Creating a standard lens file

1 Select one of the lens in stock as the standard lens and install it to the camera head.

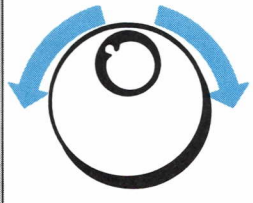
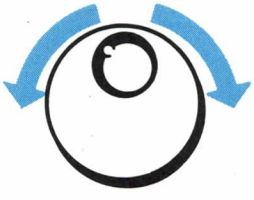
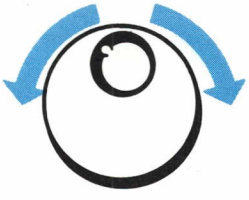
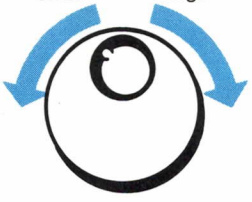
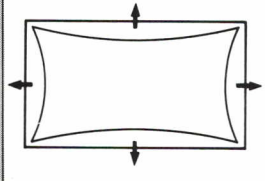
2 Press LENS (a control adjustment item selection button) to light the corresponding lamp. Set LENS TYPE to "0" using the rightmost dial.

3 Shoot the HD chart and execute the [REGI] AUTO SETUP operations.

Registering each lens

4 Install the lens to be registered and shoot the HD chart.

5 Press the [LENS FILE] button to light the lamp.
Make necessary adjustments and settings.

Items	◇ DISTORTION ◇ (Screen distortion)	LENS NO (Lens number) NAME (Lens name)		LENS TYPE
		CURSOR (Move cursor)	CHARACTER (Character setting)	
Adjustable range	−100∼100	LENS NO: 4 digits NAME: 16 characters	(See below.)	0∼63
	See below. 	Left Right 	See below. 	Small Large 
	Turn clockwise 		Turn clockwise ␣ A B C ··· Z ! " # $ % & ' ( ) * + , − . / : ; < = > ? @ 1 2 3 ····· 9	(Automatically set when the lens being used is capable of transmitting lens type information.)

6 Adjust G, B and R's white level, white shading and flare (items indicated with "◇ ◇" mark.).

7 Press the [STORE] button.
The lamp remains lit during registration and goes off when completed.

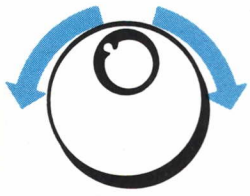
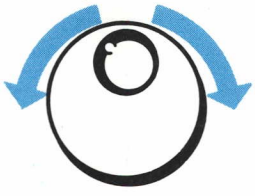
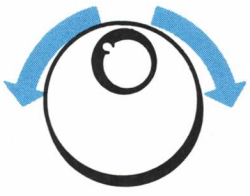
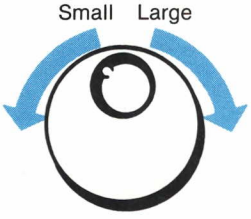
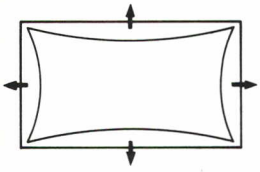
8 Execute [REGI] AUTO SETUP if necessary.

Repeat steps 4 through 8 for all lens to be registered.

(2) F value data for indicating the iris value
No standard lens is required.

1 Press the [LENS] button to light the corresponding lamp. (Do not light the [LENS FILE] lamp.)

2 Make necessary adjustments and settings.

Items	DISTORTION (Screen distortion correction)	F-NO MAX (Maximum F value)	F-NO MIN (Minimum F value)	LENS TYPE (Lens type)
Adjustable range	−100∼100	8∼22 (0.1 step)	1.2∼8 (0.1 step)	0∼63
	See below. 	Large Small 	Large Small 	Small Large 
	Turn clockwise 	Set both MAX and MIN to 00 for a lens equipped with the F value communication function. If a deviation is found in the input value, a converted value is displayed by the following operation: Set the lens iris to the maximum F value and input that value to F-NO MAX. Then set the lens iris to the minimum F value and input that value to F-NO MIN.		

3 Press the [LENS] button so that the corresponding lamp goes off.

DISTORTION
Distortion correction values adjusted in (2) above are not input to the lens file. However, the output screen signal reflects corrections made in (1) (input to the lens file) and (2) above.

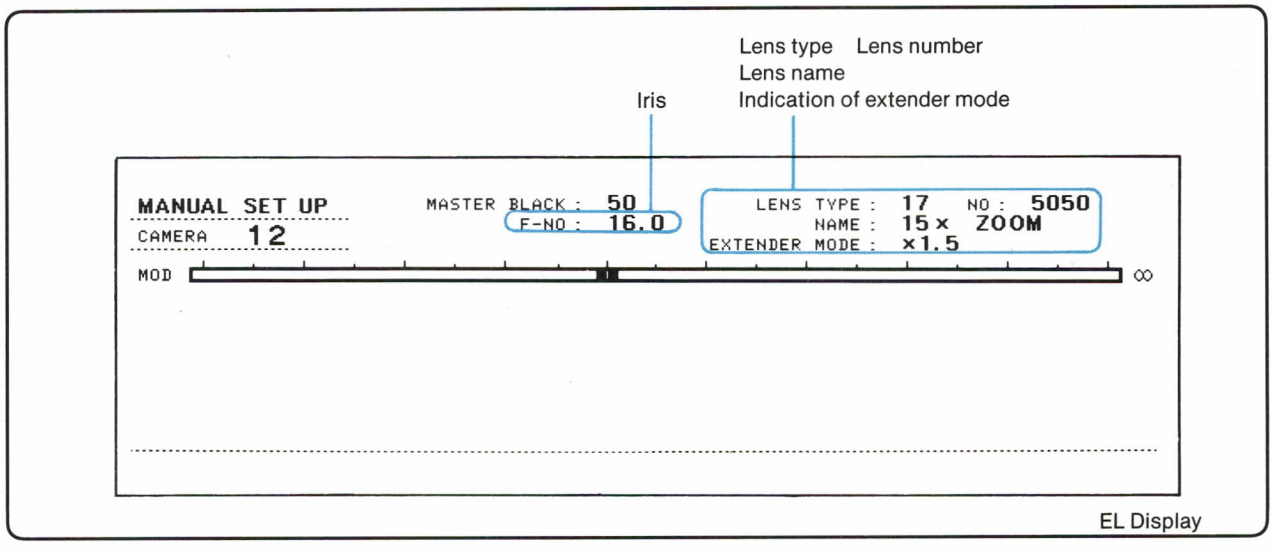
LENS TYPE
Generally, the same lens type data is transmitted from identical lenses.
However, if multiple lens files are registered on the same LENS TYPE, subcodes, like 1-1, 1-2, 1-3, ..., are automatically added to help distinguish them.

Call

When installing a lens equipped with the LENS TYPE communication function
The file corresponding to the lens type data transmitted from the lens is automatically called up.
If a subcode is added to the LENS TYPE, turn the dial to change the subcode.

When installing a lens without the LENS TYPE communication function
Press the [LENS] button and input again the same lens type data entered at registration.
The file corresponding to the LENS TYPE is automatically called up.

Displaying the lens data



EL Display

Iris value

Lens that transmits the iris value (iris position)
The iris value is sent from the lens. (When MAX and MIN F values are input by the dial, the conversion takes place based on these values.)

Others
The F value is calculated using IRIS CONT signal which controls lens iris from the camera head.

Erasing

If "NO ROOM FOR LENS" appears on registration, a new lens file cannot be registered because the EEPROM is full. Erase the last file on EEPROM area, the thirteenth that is displayed automatically, or any other unnecessary file as follows:

1 Make sure the displayed file is the correct one to be erased.

2 Press LENS FILE.

3 Press CLEAR.

4 Press LENS.

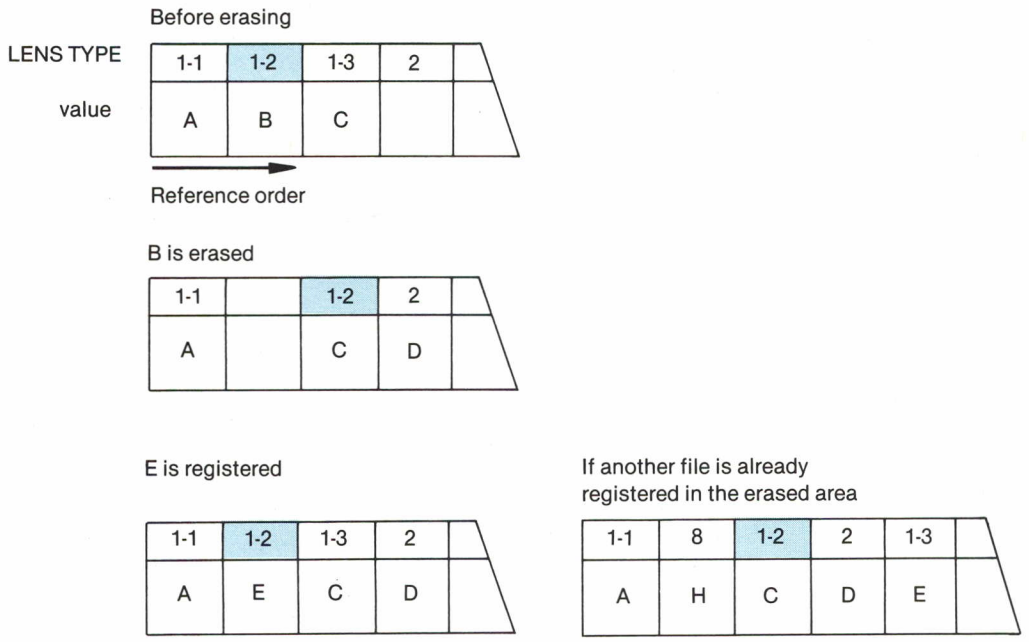
Erasing is completed. The display and setting change corresponding to the LENS TYPE of the erased file:

If no other file is registered on the same LENS TYPE
(ex. When erasing a file of the LENS TYPE 1)
LENS TYPE 1 remains and the setting changes to the preset value. (No compensation by the LENS FILE is given.) The message "NEW LENS FILE" appears.

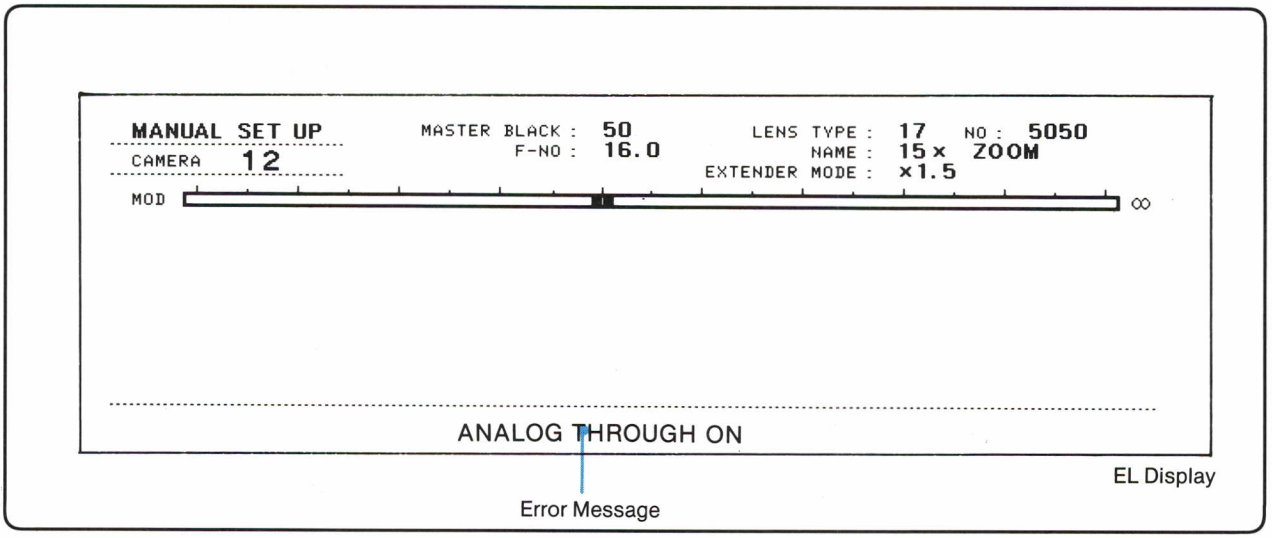
If two or more files are registered on the same LENS TYPE
(ex. When erasing the file of the LENS TYPE 1-2 among files 1-1 to 1-3)
The display "LENS TYPE" changes to 1-1, and the setting changes to the contents of corresponding file.

Note

A subcode is numbered in the reference order of the EEPROM, and not of the file's own. Therefore, the subcode may change when the lens file is erased/registered as in the following example:
ex.



Error Messages



There are three types of error message:

WARNING	Displayed with the highest priority
ALARM	Displayed only in the absence of [WARNING]
ERROR	Displayed only in the absence of [WARNING] and [ALARM]

Meaning

WARNING

(In alphabetical order)

ANALOG THROUGH ON	Analog signal directly output, bypassing the digital process circuit.
BIAS LIGHT OFF	Bias light is off.
CABLE DISCONNECTED	Camera cable is disconnected.
CCU-CHU LINK ERROR	Communication failure between CCU and camera head.
CCU FAN OFF	Cooling fan has stopped.
CCU-PANEL LINK ERROR	Communication failure between CCU and panel.
CHU OVER HEAT	Camera has overheated.
D-IE POWER OFF	Digital image enhancer has been turned off due to high CCU internal temperature (continuously monitored).
MARKER LOCAL	Marker indications by such functions as [GRATICULE] are set so as to disable their operations on the panel. (SG board)
MS BOARD LOCAL	CCU's MS board cannot be controlled by software.
PR BOARD LOCAL	CCU's PR board cannot be controlled by software.
SG BOARD ERROR	An error has been detected at CCU's SG board test.
WINDOW LOCAL	Windows accessed by the [COLOR] or [REGI] operation are set so that they cannot be controlled by software. (SG board)

[ ] CONDITION ERROR (Some adjustment conditions are not satisfied.)

AUTO BLACK BALANCE	AUTO REGISTRATION CORRECTION
AUTO CENTERING	AUTO WHITE BALANCE
AUTO COLOR	REFERENCE
AUTO QUICK REGI	

Press the [MESSAGE] button to alternately display details of the present condition.

CC FILTER SELECT	PANEL GREEN TALLY/CALL
CCU PRESET	PANEL RED TALLY/CALL
ENCODER CLEAR	REGI PRESET
GAIN SELECT	SCENE
GAMMA SELECT	SCENE STORE
IRIS CLOSE	SYSTEM PRESET
ND FILTER SELECT	VIDEO PRESET
OPERATE/TEST CHU/TEST CCU	WAITING, TRY AGAIN

[ ] EEP-ROM WRITE ERROR (Data writing to EEP-ROM failure.)

AUTO REGI SETUP FILE	MANUAL REGI FILE
COLOR FILE SETUP FILE	QUICK SETUP FILE
DELTA FILE	REFERENCE FILE
F. NO	SCENE FILE
LENS FILE	SHADING FILE

CCU [ ] MEMORY ERROR (CCU memory lost.)

COLOR SETUP FILE
REFERENCE FILE
SCENE FILE

CHU [ ] MEMORY ERROR (Camera head memory lost.)

AUTO REGI SETUP FILE
DELTA FILE
LENS FILE
MANUAL REGI FILE
QUICK SETUP FILE

Others (in alphabetical order)

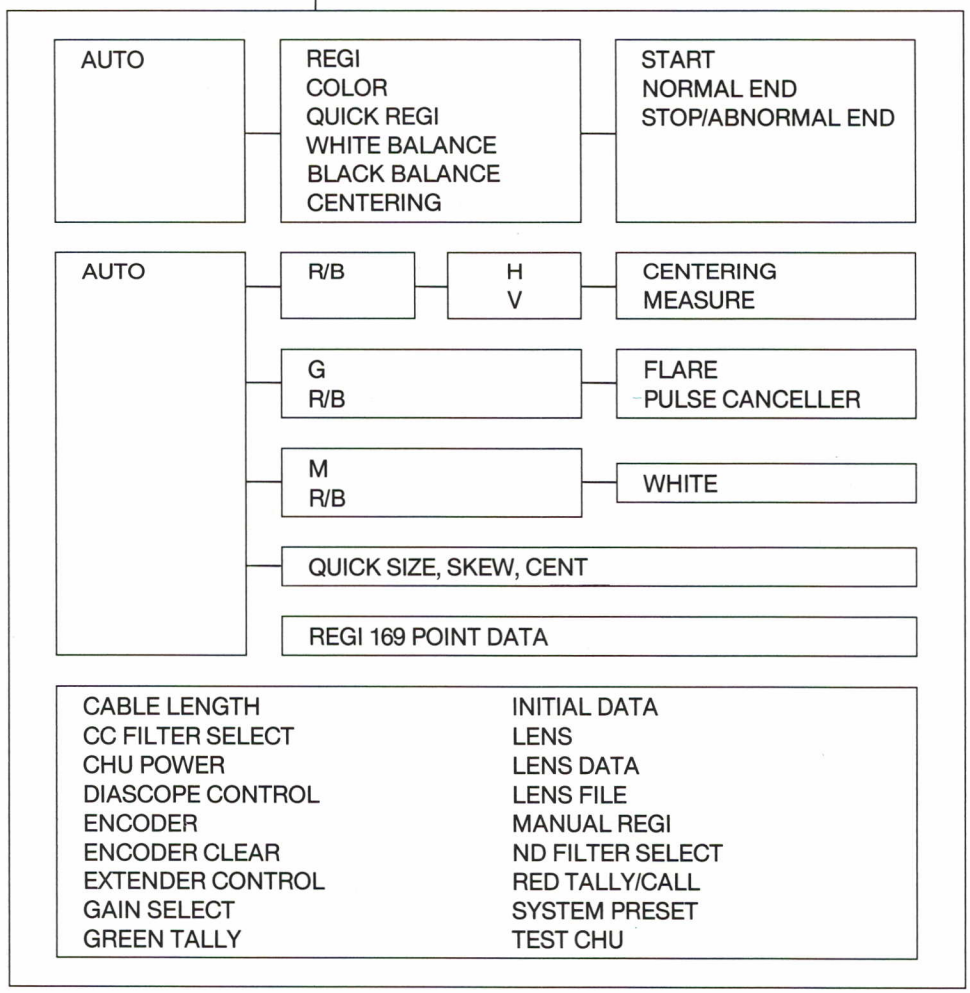
BLACK LEVEL ERROR	Black level is incorrect.
CHU (or CCU) COLD START	Power has been turned on with RAM data (backed up by a condenser) of camera head or CCU lost. Auto-setup data stored in the EERROM will be read.
ENCODER RANGE OVER	Beyond range adjustable with controls
NEW LENS FILE	Lens file has not been registered.
NOT PERMITTED TO CONTROL	In the control protected mode.
NO ROOM FOR LENS	The EEPROM is full. (See page 47.)
EXCESSIVE ERROR	Exceeding normal range
OUT OF RANGE	Unable to control.

ERROR

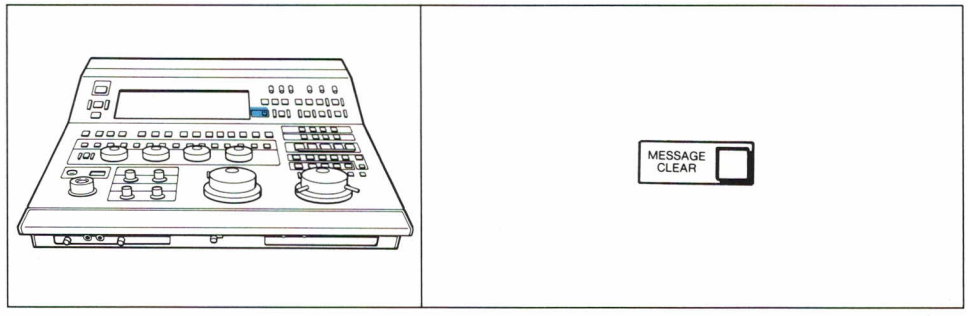
PANEL-CCU ERROR: [ ] Communication failure between panel and CCU.

AUTO REGI START	INCOM PRIVATE/COMMON
AUTO REGI STOP	INITIAL DATA
AUTO COLOR START	KNEE MODE CONTROL
AUTO COLOR STOP	LENS
AUTO QUICK REGI START	LENS DATA
AUTO QUICK REGI STOP	LENS FILE
AUTO WHITE BALANCE START	LENS SWITCH
AUTO WHITE BALANCE STOP	MANUAL REGI
AUTO BLACK BALANCE START	MASTER BLACK
AUTO BLACK BALANCE STOP	ND FILTER SELECT
AUTO CENTERING START	OPERATE/TEST CHU/TEST CCU
AUTO CENTERING STOP	PANEL ACTIVE
	PANEL RED TALLY/CALL
ALL WINDOW	PAINTING
B-REGI FINE	PAINTING MODE
CC FILTER SELECT	PAINTING ABSOLUTE MODE
CCU PRESET	PICTURE MONITOR PEAKING
CHU POWER	PICTURE MONITOR
CHU RED TALLY/CALL	SCENE
DIASCOPE	SCENE ABSOLUTE MODE
ENCODER	SHADING
ENCODER CLEAR	SYSTEM PRESET
GAIN SELECT	REFERENCE FILE 1/2
GAMMA SELECT	REFERENCE FILE GENERATION START
GRATICULE	REFERENCE FILE GENERATION STOP
INCOM PANEL MIC 1	REGISTRATION MODE
INCOM PANEL MIC 2	R-REGI FINE
INCOME PANEL MIX	WAVEFORM MONITOR
INCOM PGM/PRODUCER	

CHU-CCU ERROR: Communication failure between camera head and CCU.



Erasing an Error Message



Press the [MESSAGE CLEAR] button.

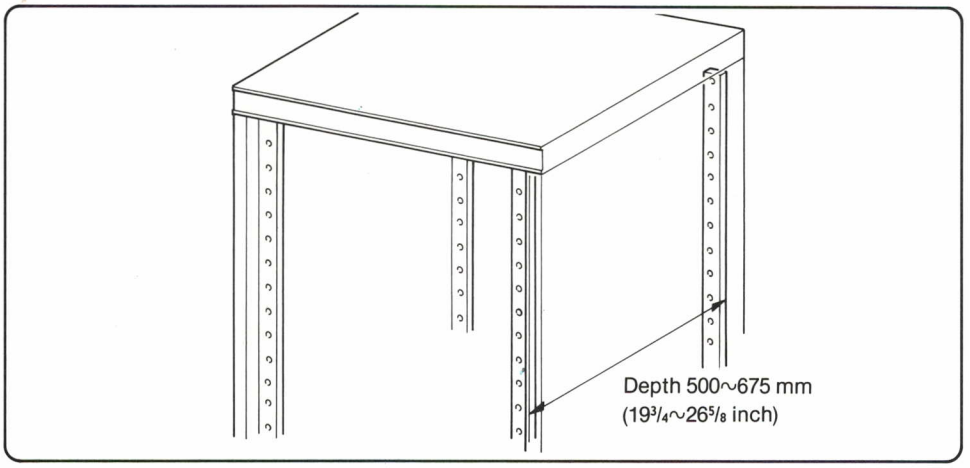
Mounting

Three types of mounting are possible.
19" rack mount
The panel is taken out when it is used. It can be removed from the rack temporarily.
Table mount
Desktop use

19" Rack Mount

Standard rack

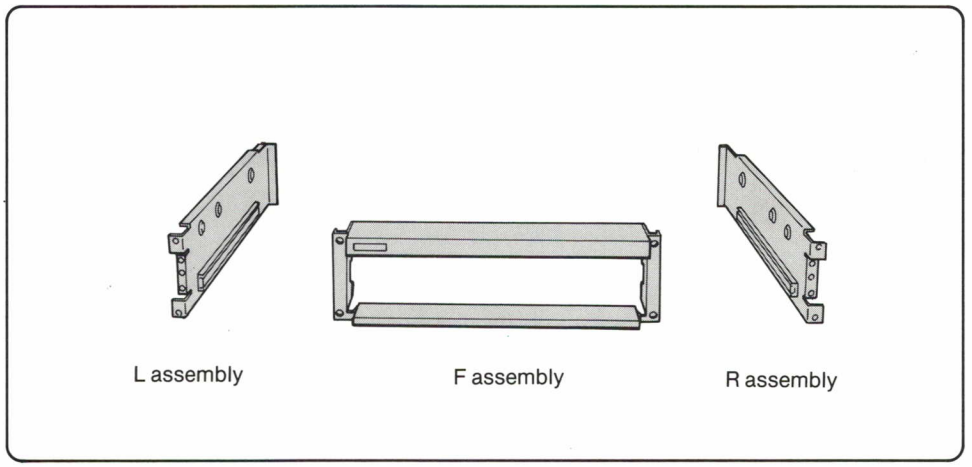
19" rack (EIA standard, universal spanning — M5 type)



Recommended rack: Sony SU-860 series

Supplied parts

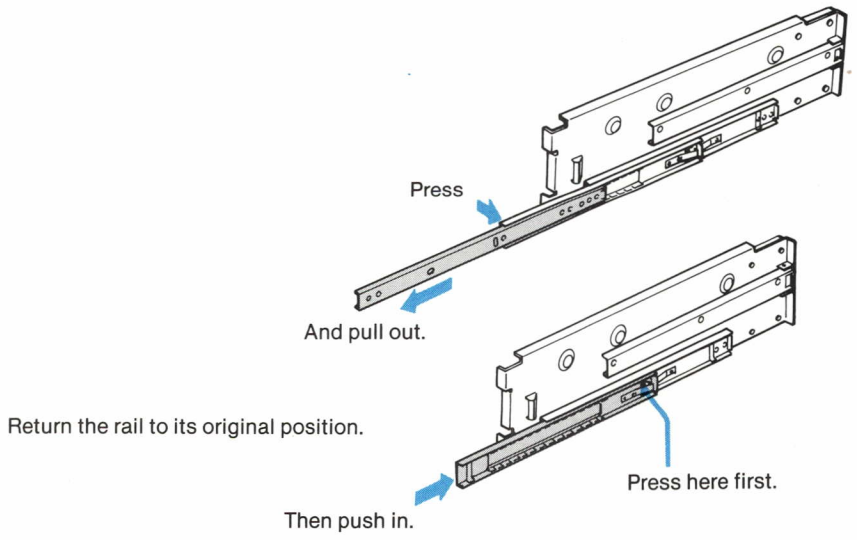
Rack mount assembly



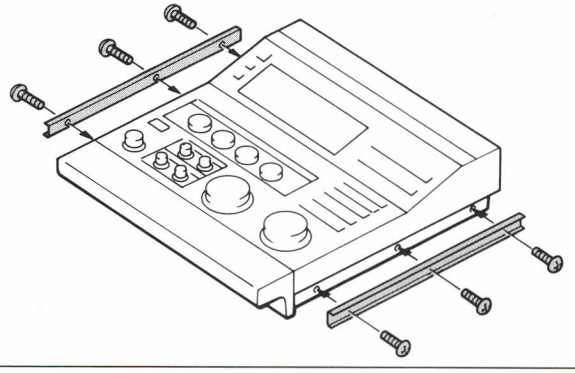
Screws
+ B5 × 8
+ RK5 × 8

Decorative washers

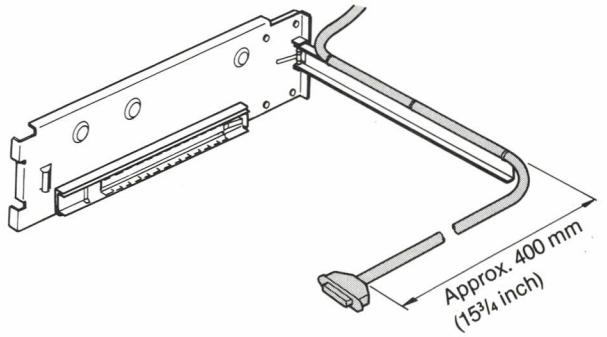
1 Remove the inner members from the L and R assemblies.



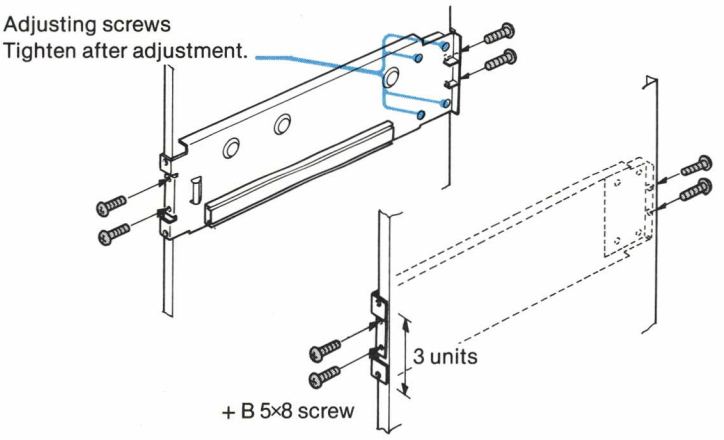
2 Mount the inner members to the panel.



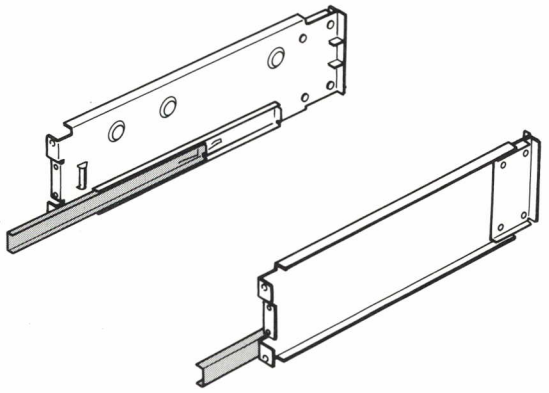
3 Attach the connector cable (supplied with HDCS-300) to the cable clamp of the L assembly.



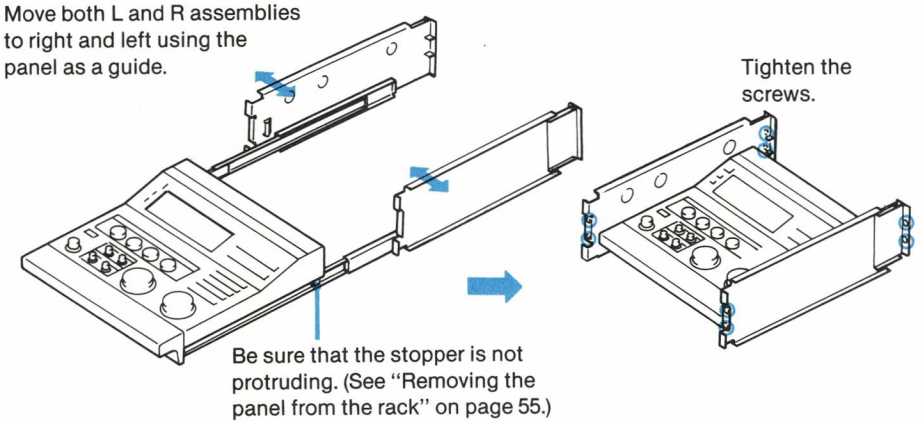
4 Fix both L and R assemblies temporarily.



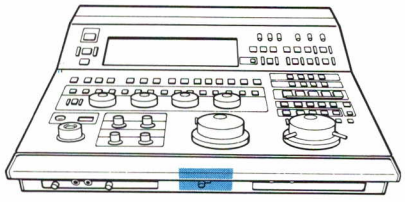
5 Pull the rail out all the way.

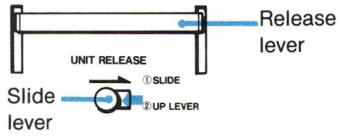


6 Mount the panel unit temporarily.


Move both L and R assemblies to right and left using the panel as a guide.
Tighten the screws.
Be sure that the stopper is not protruding. (See "Removing the panel from the rack" on page 55.)

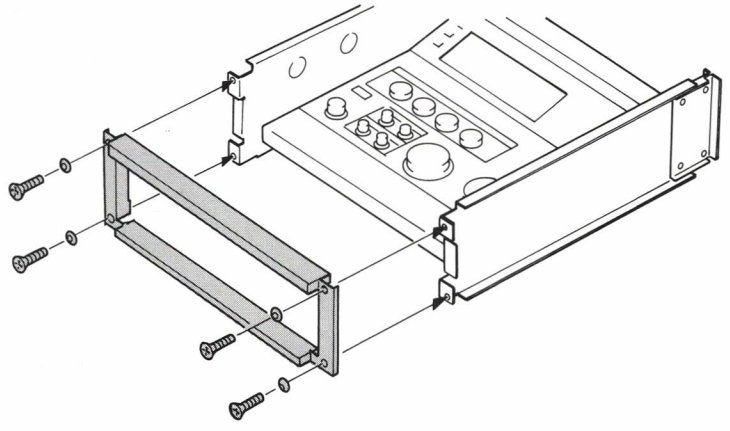
7 Move the slide lever to the left.





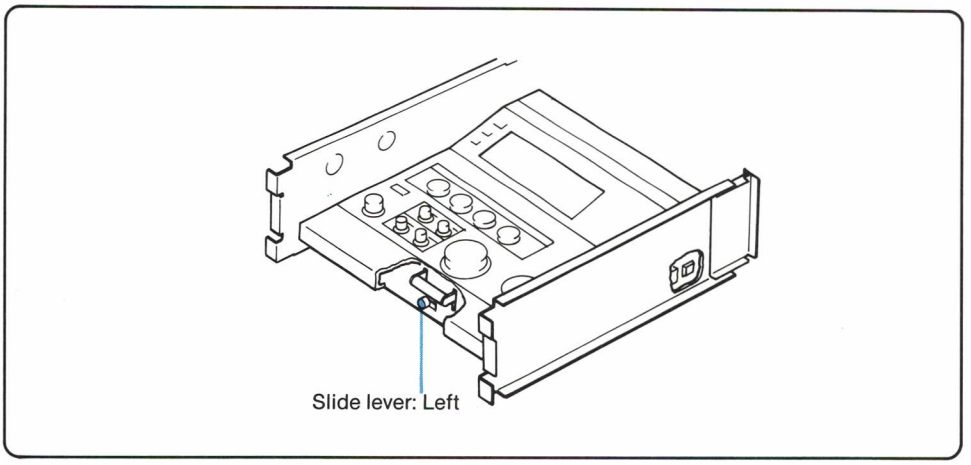
The release lever lowers. **Check whether the panel can be locked.** Also check whether the panel moves forward and backward smoothly using the handle. (See "Removing the panel from the rack.")
If the panel does not move smoothly, undo the screws and re-adjust the L and R assembly positions.

8 Mount the F assembly using the +RK and trapezoidal shaped decorative washers, and fix to the L and R assemblies.

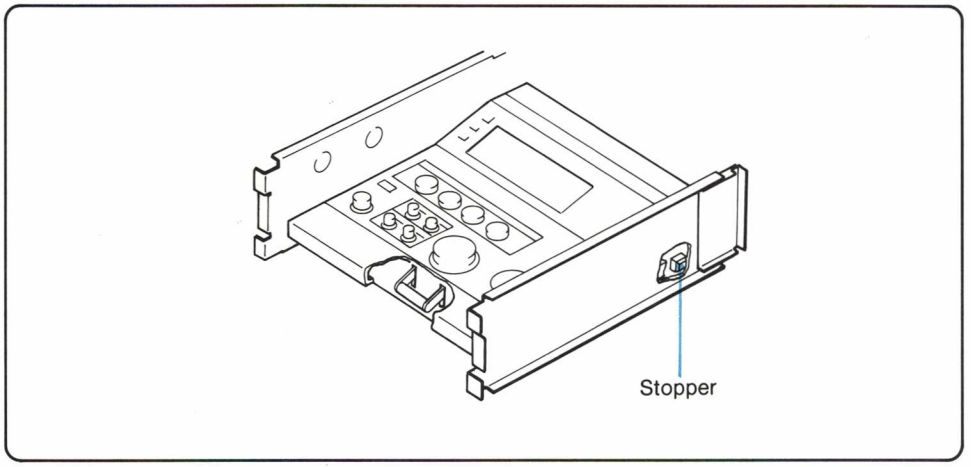


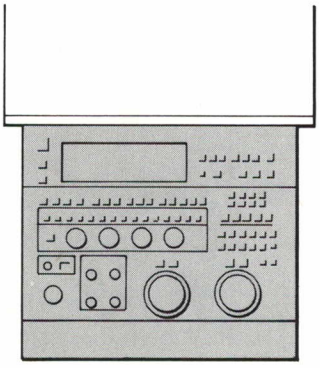
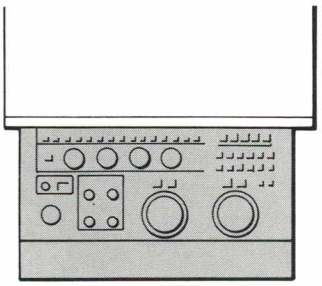
Removing the panel from the rack

Lift the release lever and pull the panel.
(When the release lever is lifted, the stopper releases the panel lock.)



With the release lever lowered, the stopper protrudes when the panel reaches one of the specified three positions and the panel is locked.

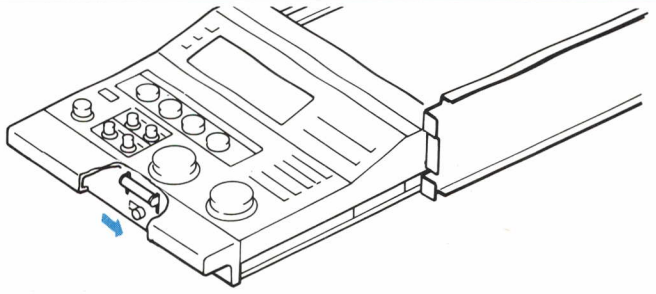


To operate entirely	To operate only the front part	To put in the mounting rack
		

Temporary removal

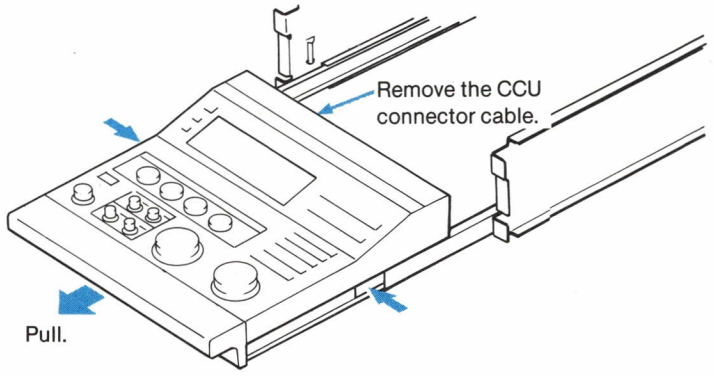
1 Pull out the panel fully.

2 Move the slide lever to the right while lifting the release lever.
When the slide lever is released, the release lever stays up and the stopper remains withdrawn.



3 Pull the panel out further.

4



Pull out while pressing the springs on the right and left.

Re-mounting

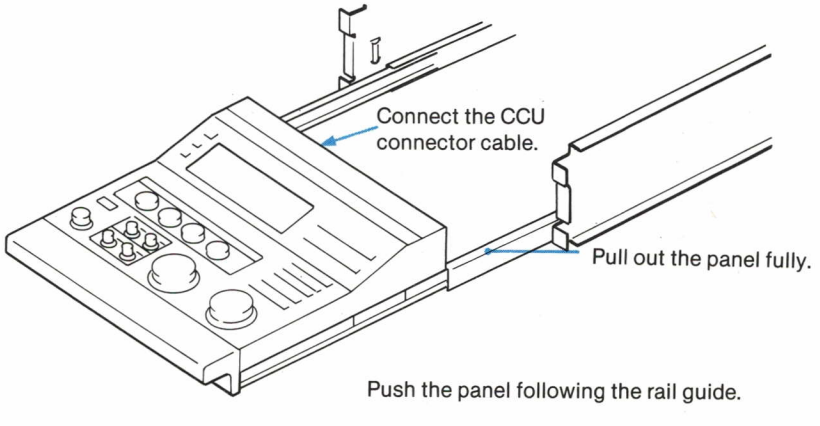
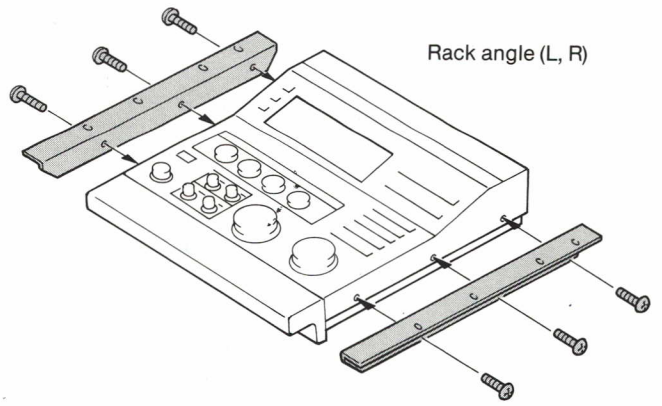
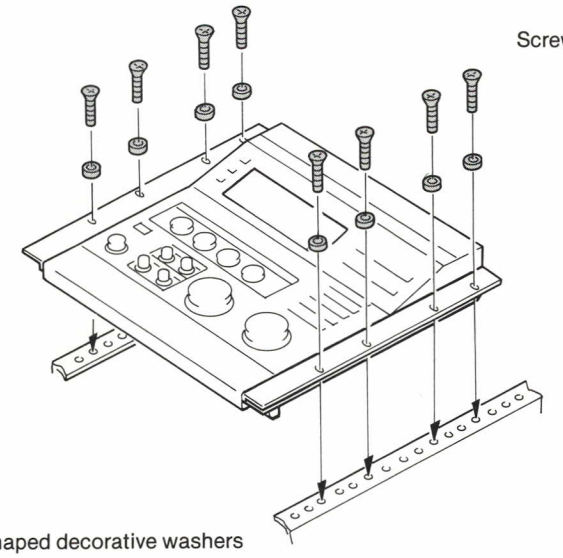


Table mount

1



2 Fix it on the table.



Specifications

Operating conditions		
Temperature:	0°C~40°C (32°F~104°F)	
Humidity:	0%~40%	
Dimensions	424 × 100 × 440 mm (w/h/d)	
	(16 3/4 × 4 × 17 3/8 inch)	
Weight	Approx. 9.5 kg (20lb 15oz)	
Accessories supplied	Rack angles (L), (R)	1 set
	Rack mount assemblies (F), (L), (R)	1 set
	Intercom panel assembly	1
	Operation manual	1
	Maintenance manual	1

Design and specifications are subject to change without notice.